

**A STUDY OF THOUGHT, LANGUAGE,
COMMUNICATION DISORDER IN
SCHIZOPHRENIA**

**DISSERTATION SUBMITTED FOR PARTIAL FULFILLMENT
OF THE RULES AND REGULATIONS
DOCTOR OF MEDICINE
BRANCH - XVIII (PSYCHIATRY)**



**THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,
CHENNAI,
TAMIL NADU.**

APRIL 2017

CERTIFICATE

This is to certify that the dissertation titled, “**A STUDY OF THOUGHT, LANGUAGE, COMMUNICATION DISORDER IN SCHIZOPHRENIA**” is the bonafide work of **Dr. MATHIVANAN. M** ,in partial fulfillment of the requirements for the M.D. Branch – XVIII (Psychiatry) examination of The Tamil nadu Dr. M. G. R. Medical University, to be held in April 2017. The period of study was from June 2016 – August 2016.

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This is to certify that the dissertation titled, “**A STUDY OF THOUGHT, LANGUAGE, COMMUNICATION DISORDER IN SCHIZOPHRENIA**” is the original work of **Dr. MATHIVANAN. M**, appearing for M.D. (Psychiatry) degree examination in April 2017, under my guidance and supervision in partial fulfillment of the requirements for the Tamil nadu Dr.M.G.R Medical University, Chennai. I forward this to the Tamil nadu Dr .M .G.R. Medical University, Chennai. The period of study was from June 2016 – August 2016.

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DECLARATION

I, **Dr. MATHIVANAN. M** ,solemnly declare that the dissertation titled,

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is a bonafide work done by myself at the Madras Medical College, Chennai, during the period from June 2016 – August 2016 under the guidance and supervision of Dr. V. SABITHA, Associate Professor of Psychiatry, Madras Medical College. The dissertation is submitted to The Tamil nadu Dr. M. G. R. Medical University towards partial fulfilment for M.D. Branch XVIII (Psychiatry) examination.

Place:

Date:

Dr. MATHIVANAN. M

Dedicated to
My family and Tamil Language

ACKNOWLEDGEMENTS

With gratitude, I sincerely thank Professor **Dr. KALAICHELVAN. A MD, DPM**, Director, Institute of Mental Health, Chennai, for his constant guidance and support.

I acknowledge and thank Professor **Dr. M.K. MURALITHARAN , MS MCH**, Dean, Madras Medical College, Chennai, for permitting me to utilise the institutional and academic resources .

I sincerely thank my guide Associate Professor **Dr. V. SABITHA, MD**,co-guide **Dr. K. VEERAMUTHU, MD** Assistant Professor for their most valuable inputs and guidance , encouragement and support.

With deep gratitude I sincerely thank all my Senior Professors, Associate Professors and Assistant Professors of Institute of Mental health, for their constant cooperation and enthusiastic encouragement.

I am very thankful to Assistant Professor Department of preventive medicine **Dr. ASHOK BOORASAMY** for helping with the statistics.

I acknowledge the help and support rendered by my batch colleagues, and also juniors towards smooth conduct and coordination of the study.

Above all I thank all the participants of the study – the patients of Institute Of Mental Health and their family members for their consent and cooperation.

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To
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Dear Dr.M.Mathivanan,

The Institutional Ethics Committee has considered your request and approved your study titled "**A STUDY OF THOUGHT, LANGUAGE, COMMUNICATION DISORDER IN SCHIZOPHRENIA**" NO. 08062016.

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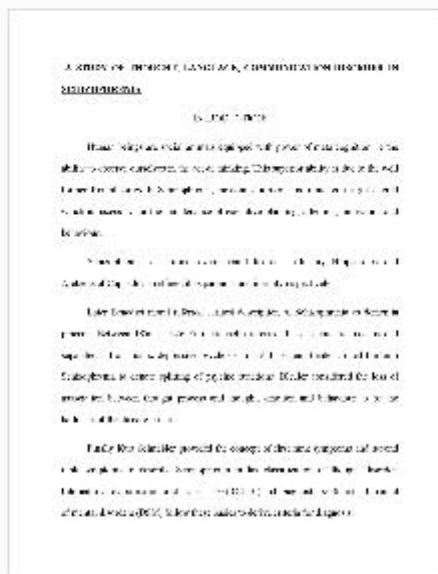


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A STUDY OF THOUGHT, LANGUAGE, COMMUNICATION DISORDER IN SCHIZOPHRENIA INTRODUCTION: Human beings are social animals equipped with power of meta cognition i.e the ability to observe ourselves in the act of thinking. This superior ability is due to the well formed frontal cortex. In Schizophrenia, the connections of this frontal cortex get altered which is necessary for the maintenance of executive planning, attention, motivation and behaviour.

Schizophrenia is a chronic severe mental disorder. 22

In history, Hippocrates and Aretaeus of Cappadocia referred it as paranoia and insanity respectively. Later Benedict morel referred earliest description of Schizophrenia as dementia praecox. Between 1856 - 1926

Emil kraepelin referred this as dementia praecox and separated it from manic depressive psychosis. 22

In 1911, Eugen Bleuler coined the term Schizophrenia to denote splitting of psychic functions. Bleuler considered

the loss of association between thought process and thought, emotion and 10

behaviour to be the hallmark of the disease process.

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1. INTRODUCTION

Human beings are social animals equipped with power of meta cognition i.e the ability to observe ourselves in the act of thinking. This superior ability is due to the well formed frontal cortex. In Schizophrenia, the connections of this frontal cortex get altered which is necessary for the maintenance of executive planning, attention, motivation and behaviour.

Schizophrenia is a chronic severe mental disorder. In history, Hippocrates and Aretaeus of Cappadocia referred it as paranoia and insanity respectively.

Later Benedict Morel referred earliest description of Schizophrenia as dementia praecox. Between 1856 – 1926 Emil Kraepelin referred this as dementia praecox and separated it from manic depressive psychosis. In 1911, Eugen Bleuler coined the term Schizophrenia to denote splitting of psychic functions. Bleuler considered the loss of association between thought process and thought, emotion and behaviour to be the hallmark of the disease process. (Kaplan & Sadock 2009)

Finally Kurt Schneider provided the concept of first rank symptoms and second rank symptoms to describe Schizophrenia in his classification of thought disorder. International classification of diseases – 10 (ICD-10) and Diagnostic & Statistical manual of mental disorders (DSM) follow these basics to derive criteria for diagnosis.

Crow (1997) stated that Schizophrenia is the price, Homo sapiens pay for language. Schizophrenia's incidence and features are standard across various population regardless of social, economic and natural environment. It leads towards its genetic origin.

When assessing the burden of illness, the lifetime prevalence of Schizophrenia is 1% according to Epidemiology catchment area data.

In India, WHO collaborative study was done in two geographically defined population in urban and rural Chandigarh.

The annual incidence rates obtained were 4.4 and 3.8 per 10,000 for rural and urban areas respectively (Wig et al., 1993). In another study conducted in Chennai, Rajkumar et al. (1993) found an incidence rate of 2.1 of 10,000 by community survey. While assessing economic burden, it has been estimated by WHO, the cost of Schizophrenia to be 6 times that of myocardial infarction.

The quality and life was assessed by Solanki et al.(2008), and found that the patients had lowest quality and life scores in social relationships.

Loganathan and Murthy (2008) assessed the experience of stigma and discrimination and found significant difference between rural and urban respondents.

Chandrasekaran et al. (2001) studied coping in the group of relatives of Schizophrenia patients and found that relatives used resignation more commonly.

Another study in care givers by Ramamohan et al.(2002) revealed that parents used denial and spouses used more negative distraction strategies for coping. Hence by various studies it was proved that Schizophrenia causes various physical, mental, emotional, economic burden upon the society.

In Bleulerian psychiatry, the pathognomonic symptom of Schizophrenia is thought disorder. But it has no standard and widely agreed definition. Evaluation of thought disorder also is unreliable. So the scale is needed which has definition of linguistic and cognitive behaviour which was frequently observed in patients. (Andreasen NC 1979a)

Concept of formal thought disorder is treated as unitary , but it has various different language behaviour. They are conceptually divergent. All are not present in same patient. Language behaviours are not exclusively for Schizophrenia, but also present in mania, depression and normal person too. And also paradoxically some Schizophrenic's speech and thought are normal.

So two major impediments are present. One, investigators have tendency to search for a single quality of thinking. Second is the absence of a reliable tool for assesing thought disorder.

To overcome this, reliable scales are constructed. Andreasen scale for the assessment of thought, language and communication (Andreasen NC 1978),

Thought disorder index (Johnson and Holzman 1979) and thought disorder assessment (Harrow and Maeng 1986) are constructed subsequently.

With thought, language, communication scale, Nancy Andreasen did a study describing various types of thought disorders in 1979. Based on this Mazumdar et al. did a study on the same in 1987 at NIMHANS, Bangalore. They studied the type, nature and prevalence of thought, language, communication disorder in Schizophrenia. (Mazumdar P.K, 1987)

After that studies are done rarely in that area. Especially in Tamil Nadu no such studies have been done so far.

In this thesis, our aim is conducting study of thought, language, communication disorders in Schizophrenia at Institute of Mental Health, Chennai, Tamil Nadu.

We examine the type, prevalence and severity of thought disorder in Schizophrenia and examine difference between acute episodes of Schizophrenia and chronic institutionalised patients of Schizophrenia.

Also we examine type, prevalence and severity of thought disorder association with socio demographic and clinical variable.

2.REVIEW OF LITERATURE

“Thought, Language and communication are interlinked. Thoughts are being formation of new ideas.”(DSM 5)

“Language includes the form, function and use of a conventional system of symbol (i.e spoken words, sign language, written words, pictures) in a rule-governed manner for communication”. (DSM 5)

“Communication includes any verbal and non-verbal behaviour (whether intentional or unintentional) that influences the behaviour, ideas or attitude of another individual” (1). (DSM 5)

“Thought disorder can be viewed as inability to perform meaningful logical operation, an inability to conceptualise and a loss of goal directedness in its formal characteristics” stated by Mazumdar et al.(1988)

2.1 History

Madness has been observed and recorded for centuries. There are accounts from Hippocrates in 400 BC as well as Egypt in the days of Pharaoh.

First detailed account of literature of the case of paranoid Schizophrenia is thought to be that of James Mathews in 1790s. He was admitted to Bethlem Psychiatric hospital after he accused the Government of trying to kill him. First distinct syndrome resembling Schizophrenia was described by Benedict Moral

(1809- 1873) a French Psychiatrist. In 1853, he described early adults suffering from what he termed dementia praecox to refer mental status of young patients with stupor. Arnold Pick first used the term dementia praecox in 1891.

The term Schizophrenia was coined on April 24, 1908 when Professor Bleuler gave a lecture at German psychiatric association in Berlin. (Kyziridis TC 2005). Bleuler argued that dementia praecox was neither dementia nor precociousness but splitting of psychic functioning is an essential feature of Schizophrenia. There is more or less splitting of psychological function as the disease becomes distinct, the personality loses its unity. (Kuhn R. Eugen Bleuler's concepts, 2004)

By Splitting, Bleuler meant 1) a deep and general primary losing of associational network leading to irregular breaking of concrete concepts and 2) a more apparent systemic splitting of idea – complexes (Bleuler E (1911) Dementia praecox oder Gruppe der Schizophrenic frenz deutricle, Lupzig)

Hence Bleuler intended the split personality to reflect the fact that there was an underlying dissociation between various functions like memory, cognition, emotion that are normally integrated in normal people.

He gave famous 4 A's(Affect, Autism, Ambivalence and Association) the core of Schizophrenia and were fundamental aspect of the disorder.

Third important person assessing about thought disorder in schizophrenia is Kurt Schneider. Schneider made diagnosis based on form rather than the content of a sign or symptom. He argued that delusion should not be diagnosed by the content of belief but the way in which a belief is held.

He concerned to differentiate Schizophrenia from other psychosis by listing the psychotic symptoms that are characteristics of Schizophrenia – first rank symptoms of Schizophrenia. (Schneider K.1959)

But majority of diagnosis of Schizophrenia are based on non – first rank symptoms. About one fifth of the cases showed non-productive symptoms such as disturbances of thought, affect and behavior. But they showed high intensity symptoms. (Kurt Schneider Schizophrenia , 1987)

Andreas Marneros asserted that frequency of first rank of symptoms among patients hospitalised first time in their life was 47%. It depends on age, sex, existence of somatic finding but independent of intellectual capacity or observation time. (Marneros A 1984)

Psychiatrists consider formal thought disorder as being one of the two types of disordered thinking. With other being delusions. The former involves the form of the thought, latter involves the content. Formal thought disorder is not unique to Schizophrenia or psychosis. It is often a symptom of mania too. (Jefferson, James W: Moore David Scott 2004)

Wolfram Hinzen and Jaona rossello hypothesized that linguistic disorganisation in Schizophrenia brain plays a more central role in the pathogenesis of this disease than commonly supposed. Against the standard view that Schizophrenia is a disturbance of thought disorder of selfhood, they argued that the origins of the relevant forms of thought and selfhood atleast partially depend on language (Wolfram Hinzen et al., 2015).

This linguistic model emperically argues for

- 1) one to one correlation between human specific thought or meaning and forms of grammatical organisation and
- 2) an integrative and co-dependent view of linguistic cognition and its sensory motor dimensions.

A breakdown of these leads to core symptoms of formal thought disorder.

In this model, three main symptoms of Schizophrenia fall into place as failures in language – mediated forms of meaning, manifest either as a disorder of sensory perception (auditory verbal hallucination), abnormal speech production running without feedback control (formal thought disorder) or production of abnormal linguistics content (Delusions) (Wolfoam Hinzer et al. 2015)

“Ever since the concepts of thought disorder was given pre-eminence in Bleuler’s conceptualisation of Schizophrenia (1950), study of this important

symptom or sign has been plagued by absence of common ground agreement concerning its definition or best method for assessing it” (Andreasen NC 1979a)

Nancy Coover Andreasen is a prominent neuro scientist and psychiatrist basically an English professor changed her career as physician- neuroscientist. She developed first scales to measure the positive and negative symptoms of schizophrenia, first modern empirical study of creativity that examined familial and environmental factors, cognition and relationship with mental illness, did first study to combine genomic technique with neuroimaging technique. She also contributed to the area of psychiatric diagnosis by serving as both DSM III, DSM IV task force. She currently holds the Andrew H. Woods chair of psychiatry at university of Iowa, Carret college of Medicine (Marquis who’s who in America 2008)

The concept of thought disorder was important in Bleuler’s conceptualisation of Schizophrenia. Before neo-kraepelinian revival, Bleuler has got unrivalled influence in American Psychiatry.

Bleuler viewed(Bleuler E. Dementia praecox) that “certain symptoms are present in every case and every period of illness eventhough as with every other disease symptom, they must have attained a certain degree of intensity before they can be recognised with any certainty. For example peculiar association disturbances is always present. Fundamental disturbances are characteristics of

Schizophrenia, accessory symptom appear in other types of illness” (Bleuler E 1950).

But the conceptualisation of the relationship between thought disorder and Schizophrenia is questioned by various studies (Andreasen NC 1974 & Andreasen NC 1975).

And various investigators suggested thought disorder is not specific for Schizophrenia. It is seen in mania, schizoaffective and normal individual too. And also not all schizophrenic patients exhibit thought disorder at every stage.

Because of common ground of definition were not attained, investigators tried to make hypothesis as loss of abstract attitude, overinclusive thinking, defect in attention or immediacy hypothesis (Chapman LJ e al., 1962 & Chapman LJ 1973)

Some interested in clinical evaluation of formal thought disorder by number of formal test as proverb test, projective test (Gorham, 1956). Apart from Kraepelin’s work in description of thought disorder, clinical observation of patient’s language behaviour was not given importance for some time (Kraepelin E 1914).

As there was no wide spread agreement in definition of most of the terms and lot of variations, thought disorder evaluation was unreliable.

In clinical setting, thought disorder is assessed by language behaviour. Making of definitions and assessing language behaviour yield thought disorder assessment. But substantial study showed that thought and language is not perfectly related (Lecours et al., 1976).

They argued that deaf children, not developed by speech, were able to conceptualise things. Aphasic patients have thought but were not able to articulate with language. Sometimes normal people consciously manipulate their language behavior (Forth HG, 1964).

So in clinical psychiatry thought disorder or formal thought disorder means disorganised speech would be more appropriate. By observing patient's speech and language, thought disorder is inferred. Definition are constructed to describe speech and language behaviour without characterise underlying cognitive process. This empirical, observational approach will improve reliability.

2.2 Development of scale for assessment of thought, language, communication

Thought disorder is considered as single phenomena but in reality it is manifested as having heterogenous speech and language behaviour. So set of 18 language behaviours are defined. All are considered as subtype of thought disorder (Andreasen NC 1979a)

Semantic and phonetic paraphasia were too included to rule out aphasia due to organic cause. These are comprehensive, not restricted with Schizophrenia only. In clinical practice, language behaviour abnormalities are seen in Schizophrenia, mania and depression. Comprehensive set of definitions without diagnostic bias will help to know how common these language behaviours are present in various diagnosis. Semantic and phonetic paraphasia are added after the difficulties of experience felt during differentiation of psychotic speech and aphasic patients (Andreasen schizophrenic language and aphasia)

While choosing the terms, there redefine, combine, delete older concepts to enhance reliability. Loosening of association eventhough it was Kraeplin's term (Kraeplin), it looks meaningless and derailment term is used because it is graphically more descriptive.

And four new items added related with loosening of association - that is tangentiality, incoherent, illogicality, clanging. Flight of ideas dropped and included under derailment and pressure of speech.

2.3 Pilot study for definitions

After definitions were constructed, four to five point scale was developed. It was piloted for reliability and clarity. 44 patients with mania, Schizophrenia, depression were taken for study. (Andreasen NC 1979a)

Tape recorded interviews were listened by two raters. One was originally interviewed the patients already and another one was blind. After the study, definitions were reviewed and minor changes were made.

During second phase, 69 patients were evaluated by live interview. Questions were not asked which related to symptomatology. Patients were allowed to talk initial 10 minutes without interruption. Minor stimulations by interviewer to encourage their talk was done. Then questions were asked from concrete, abstract, personal, impersonal contents. Each interview lasted for 45 minutes. Interviews were live and taped simultaneously.

Live interviews only used to evaluate because taped one had problem of distorting the evaluation due to absence of visual cues and live cues which miss the fine details. Raters were blind to diagnosis.

Interrater reliability, test retest assessment were done. Inter rater reliability were excellent. They found test retest reliability has significant problem due to occasional variance that is changing of patient language behaviour with time frame due to clinical improvement.

Interrater reliability has two problems - observation variance, criterion variance. Observation variance is difference in inference of patient's thought process by raters. Criterion variance is using different criteria by raters. Eventhough inter-rater reliability is excellent.

2.4 Definition of thought, language, communication (TLC) variables

Following definitions are constructed by Andreasen in her thought language communication scale. It is derived from naturalistic observation of patient's cognitive and language behaviour. More frequently occurred are listed first. (Andreasen 1979a)

Poverty of speech:

Restriction in the amount of spontaneous speech is present. Replies are brief, concrete, unelaborated. Additional information rarely provided without promptation. To elicit this, patient should be allowed adequate time to answer.

Poverty of content of speech:

Replies are long so that speech is adequate but it conveys little information. It is vague, over abstract, over concrete, repetitive, stereotyped. The patient speaks very long time but not giving adequate information. Otherwise to give adequate information, use many words. It is sometimes called empty philosophising.

Pressure of speech:

Spontaneous speech is increased. Patient talks excessively and very rapidly than normal. His sound is loud. Some sentences are left uncompleted because he switches over new ideas. Without interruption, he answers very long, non-stop.

Sometime spontaneous speech and continuous talk present eventhough there is no social stimulation and listeners. It is frequently associated with derailment, tangentiality, incoherent.

Distractability:

During interview, the patient repeatedly switch over from his sentence, idea in response to nearby stimulus as object or interviewer or environment.

Tangentiality:

Replies are oblique, tangential or irrelevant manner. It may be related in some distant way and sometimes unrelated too. It was partially refined as replies only to questions and not to transitions in spontaneous speech.

Derailment:

It is the pattern of spontaneous speech where ideas are slip off the track one on another. Each one was distantly related or unrelated to previous idea. Patients idiosyncratically shifts from one frame to another frame. Patients speech shows slow steady slippage and get farther and farther off the track. They did not have awareness about their slippage.

Incoherence:

A pattern of speech which is incomprehensible at times due to different mechanisms. Grammar and syntax rules are ignored and words joined arbitrarily

and at random manner. Sometimes at semantic level, disturbances are present. Sometimes cementing words and adjective pronouns are frequently missed. It is rare but severe if it is manifested.

Illogicality:

A pattern of speech, conclusions are made by inference two clauses which is illogical. It is the form of faulty inferences. It is not under delusional system. Illogical thinking due to cultural, religious, intellectual deficit should be excluded.

Clanging:

A pattern of speech in which word choices are governed by sounds rather than meaningful connections. Rhyming relationship, punning association brings new thought. Intelligibility is impaired.

Neologism:

It is new word or phrase formation where route of origin is not understandable. It is quite uncommon.

Word approximation:

Old words are used in new unconventional ways and new words developed by conventional ways. Their meaning of word, route of origin is understandable.

Circumstantiality:

A pattern of speech in which speech is indirect and delayed in reaching its target. Patient brings too many tedious details. It lasts for minutes and interruption of the interviewer is necessary to complete the history taking in allotted time.

Loss of goal:

A pattern of speech in which there is failure of chain of thought ends in natural conclusion. Patient begins with one subject and wanders away, never return to initial subject. It is often associated with derailment.

Perseveration:

A pattern of speech in which persistent word, ideas, subject is manifested by the patient. He continually returns to it during the process of speaking.

Blocking:

During conversation, patient stopped in between and started to another idea. He cannot recall the previous idea. Voluntary acceptance by the patient is necessary to term as blocking.

Echolalia:

In this pattern, patient echoes the word, phrase of interviewer's. It is repetitive and persistent.

Stilted speech:

A pattern of speech where stilted and formal quality is present. The stilted speech is usually achieved by word choice of extreme polite phraseology, stiff and formal syntax.

Self reference:

The patient refers to himself when someone is talking about some subject and refers even neutral subjects to himself. It is observed during informal conversation.

Paraphasia phonemic:

This is mis-pronunciation of words due to sound or syllables slipped out. Milder form in every day is normal. Severe form is present in originicity.

Paraphasia – semantic:

Substitution of inappropriate words called paraphasia- semantic. It is present in Broca's aphasia and Wernicke aphasia. Formal testing is needed to rule out organic cause.

2.5 Ratings and Classifications

Ratings are made according to the frequency of the items and occupying in the duration of entire interview. 0-3,0-4 ratings are given. Mild, moderate, severe, extreme definitions are used.

Andreasen (1978) classified following items from the scale of thought, language and communication disorders.

- 1) Communication disorders includes poverty of content of speech, pressure of speech, distractability, tangentiality, derailment, stilted speech, echolalia, self reference, circumstantiality, loss of goal, perseveration and blocking.
- 2) Language disorders includes incoherence, clanging, neologism and word approximations.
- 3) Thought disorders includes poverty of speech and illogicality.

More pathological and less pathological items are classified. They are classified by considering its significance of TLC items during the interview.

More pathological are poverty of speech, poverty of content of speech, pressure of speech, distractability, derailment, tangentiality, incoherent, illogicality, clanging, neologism, word approximation.

Less pathological are circumstantiality, loss of goal, perseveration, blocking, echolalia, stilted speech, self reference.

Global rating is done by two ways. One literally rated 0-4 ratings as equal to nil, mild, moderate, severe, extreme TLC disorder. It mainly depends the

communication difficulty experienced during interview due to occurrence of more and less pathological TLC items.

Another way is summing all 18 items and scoring it. During summation more pathological is rated as 2. Less pathological is rated as 1.

2.6 Andreasen study II

Andreasen conducted interview of 113 patients of mania, depression and schizophrenia. They found some TLC disorders which was thought to be important earlier has not occurred frequently. (Andreasen 1979b).

The pathognomonic sign of schizophrenia, associative loosening is not restricted to schizophrenia only. It is found in Mania and even normal people too. But in their study they strengthened positive and negative formal thought disorder concept.

When Bleulerian criteria is difficult to operationalise, delusions and hallucinations are given prominence. (Schneider K, 1959)

After that some investigators stated that thought disorder is continuous phenomena, not a discrete one (Harrow et al. 1973 & Harrow et al. 1977).

Thought, language, communication disorder scale which contains 18 subtypes which developed by Nancy Andreasen, has good inter rate reliability and

permits linguistic and cognitive abnormalities investigation in psychiatric patients (Andreasen 1979b).

They evaluated 113 patients (32 manic, 32 depression, 45 schizophrenia). All are more than six months duration but not chronic.

During first week, evaluation was done. All were receiving medication at that time. They were separated into two groups. First group were evaluated by 20 minutes interview by tape recording. Two raters were present. One rater's rating who was blind to the patients was considered.

Second group were evaluated by structured interview as already described (two observer, one was blind, 45 minutes duration time). Interrater reliability was good. Both results were pooled and evaluated.

They found blocking, clanging, neologism, incoherence were infrequently occurred.

Pressure of speech, clanging, distractibility, circumstantiality equally occurred in mania, Schizophrenia.

Poverty of speech, poverty of content occurred especially in Schizophrenia.

At the end of study, they formulated loosening of association, positive formal thought disorder, negative formal thought disorder and positive - negative dichotomy concepts.

Loosening of association includes tangentiality, derailment, incoherence, illogicality, clanging.

Positive formal thought disorder includes pressure of speech, tangentiality, derailment, incoherence, illogicality.

Negative formal thought disorder includes poverty of speech and poverty of content of speech.

Positive negative dichotomy means scoring of positive formal thought disorder minus negative formal thought disorder.

And they also found tape recorded interview, observers error of missing of patients gesture, face movement, tone and assessment of severity will be more and it distorted evaluating thought disorder. So live interview is far more better and it was considered for evaluation.

In their study, commonest language behaviour are pressure of speech, tangentiality, derailment, loss of goal, perseveration, poverty of content.

Next are poverty of speech, incoherence, circumstantiality, distractability.

Least are clanging, blocking, echolalia, neologism, word approximation.

Positive and negative formal thought disorder concept made by FISH found to be more useful in differentiating Schizophrenia and mania.

She stated that thought language communication abnormalities were reversible in mania as the affective state normalises. She mentioned two arguments in TLC abnormalities in Schizophrenia.

At one end these patients seemed to have difficulty in perception. They were not aware that their speech did not communicate to their listeners. She stated that Schizophrenia could be a communication disorder where patients inability to listener's need was hallmark.

And another extreme, primary abnormalities in brain were present. Electronic circuitory monitoring of the language and thought, misfiring and lost the ability to monitor language.

2.7 Andreasen study III

Harvey 1983, Harvey, Earle-Boyer and Weigus 1984, Berenbaum, Oltsmanns and Gottesman 1985; Simpson and Davis 1985, Davis et al) all found that Nancy Andreasen TLC scale was highly reliable in various settings and they supported TLC scale for evaluation of positive and negative formal thought disorder.

Andreasen et al. (1986) again did a study on 94 normal volunteers and 100 psychiatric patients, manic, schizoaffective, Schizophrenic disorganised and paranoid subtypes (each 25 in numbers).

They studied the frequency of thought disorder in transitional diagnostic group and severity and type of thought disorder in predicting outcome in longitudinal follow up.

45 minutes period of interview conducted as live and tape recorded.. Live only used to evaluate. Interview done within first 3 days of admission. After 6 months, follow up study was conducted.

The results showed some TLC abnormalities- derailment, Loss of goal were found in normal people too.

Manics were more disorganised , excessive and manifested as having pressure of speech, derailment, loss of goal, circumstantiality, incoherence, illogicality.

Schicoaffectives had similar pattern but in less severe form.

Hebephrenics were high ratings on poverty of speech, poverty of content, tangentiality, derailment, incoherence, illogicality, word approximation, perseveration.

Paranoids had similar pattern but less poverty of content and incoherence.

Andreasen study showed stability of TLC items frequency during replicability. Significant difference were present in global rating of Schizophrenia and tangentiality in mania.

During follow up study, they found manic patients remitted significantly and schizoaffectives too. But Schizophrenics had persistent disorganisation. Language abnormalities tend to persist during follow up. Hebephrenic had significant change only on pressure of speech and incoherence. Paranoids showed no significant changes.

In assessment of type and severity outcome correlation, negative formal thought disorder had poor outcome. Positive formal thought disorder had no significance. She concluded that TLC scale was good in consistence and its stability and utility in clinical research was good.

2.8 Other studies on thought, language, communication

Some other scales are thought disorder disorder index TDI (Johnson and Holzman 1979), thought disorder assessment TDA (Harrow and Marengo, 1986).

Davis et al (1986) did a study on TLC disorder in 98 psychiatric patients and found that Andreasen TLC scale was highly reliable. Inter rater reliability ranged from 0.35 to 0.80 (weighted kappa).

Harvey et al. (1984), Berenbaum et al. (1985), Simpson et al. (1985), Davis et al. (1986) found TLC scale was highly reliable and supported positive and negative thought disorder distinction.

Groove and Andreasen (1985) did a study of formal thought disorder in manic, psychoaffective and Schizophrenic. They examined syntax processing and

perception of meaning by using two paradigms (embedded click and memory of gist tasks) developed by psycholinguistics.

They stated that psychotic patients do not have specific language perception but have short term memory deficit. This deficit remit in manic and schizoaffective but not in Schizophrenics. They also stated negative formal thought disorder high in Schizophrenia. And schizophrenia and autism were best differentiated by derailment.

Sass et al. (1984) stated that severe formal thought disorder Schizophrenic's parents showed much communication deviant. But paranoid Schizophrenic's parents had low communication deviance. They suggested that parental communication deviance could be associated with offspring cognitive disorganisation.

Romey (1984) stated that first degree relative of Schizophrenia had formal thought disorder more often.

Meloy (1984) stated that "dream constriction could be a regressive marker in heritability of Schizophrenia".

Lanin – Kettering and Harrow (1985) stated that Schizophrenia is thought disorder. But Chaika, Lambe (1985) stated that it is speech disorder. But the research in linguistics stated that it is neither thought disorder nor speech disorder,

but semiotic disorder which involves speech act, reference, pragmatic, interpretation.

Harrow and Marengo (1986) did a longitudinal examination of TLC disorders in Schizophrenia, psychotic non- Schizophrenia, non psychotic population. They found that although thought disorder presented in mania, Schizophrenia, in Schizophrenia thought disorders are more severe in nature.

This finding was also reported by Holzman et al. (1986). Follow up after 2 years showed that schizophrenic patients had persistent or episodic thought disorder. They also stated that severity of the thought disorder at the time of hospitalisation associated with prognosis.

Spohn et al. (1977) studied the effect of neuroleptic treatment on thought disorders of 100 chronic patients. They stated that schizophrenia and schizoaffectives had more severe thought disorder than mania and normal person. They stated that in chronic Schizophrenia, thought disorders are not reduced to normal levels by drugs.

2.9 Mazumdar study (1987)

Mazumdar et al. conducted a study of TLC disorder in Schizophrenia at NIMHANS, Bangalore (1987). He studied about type, severity of thought disorder in schizophrenia.

He found poverty of speech, tangentiality, derailment, loss of goal, perseveration were the commonest. And rural patients had more negative formal thought disorder. Clanging, neologism, circumstantiality, echolalia found more often among literates.

Mazumdar et al (1988) did a study on thought disorders in Schizophrenia (45 patients at NIMHANS). He grouped the patients as acute and chronic. Acute patients are 6 months to 2 years duration of illness. Chronic patients are more than 2 years of illness.

He found that negative formal thought disorders more in rural patients.

Perseveration occurred more often in illiterate. And echolalia, circumstantiality more often in literate group.

Commonest types are poverty of speech, tangentiality, derailment, loss of goal, self reference. Rarest are clanging, neologism, stilted speech.

Poverty of speech was high in paranoid group. Positive formal thought disorder was more in chronic Schizophrenia.

He found that paranoid and non paranoid had no significant difference. He also stated that lack of education and rural background showed more perseveration.

Andreasen and Groove (1986) stated that paranoid, non paranoid had similar thought pathology but less severe pattern was present in paranoid and gross disorganisation present in non paranoid.

Nasarallah (1982) stated that paranoid , non paranoid showed differences in morbidity risk in first degree relatives, age of onset, cognitive perception function, Norepinephrine in the nucleus accumbans and limbic system, corpus callosum thickness, cerebral blood flow and sensory motor lateralisation (5) and computer tomographic brain changes .

But Mazumdar et al. stated that inspite of this findings, there was no difference in paranoid, non paranoid group.

He stated that most common type of thought disorder (>50%) in paranoid group are poverty of speech, tangentiality, derailment, loss of goal, perseveration and self reference. Least common (<10%) are pressure of speech, illogicality, clanging, neologism, word approximation, echolalia, blocking and stilted speech.

Most common type (>50%) in non paranoid group are poverty of content, tangentiality, derailment, loss of goal and perseveration.

Least common (<10%) were illogicality, clanging, neologism, word approximation, echolalia, blocking and stilted speech.

“Differences in paranoid and non paranoid in acute and chronic Schizophrenia were not found significant. Only difference is tangentiality highly prevalent in

chronic paranoids, possibly reflects evasive mode of communication”.(Mazumdar et al. 1991)

2.10 Schizophrenia and linguistics

Benjamin Lee Whorf (1950) contributed a lot in inter relatedness of language and thought. Whorf hypothesised that “language and thought go together, language limits and facilitates particular concepts and perpetuates a particular world view” (1961). Brown and Lenneberg supported the same view(1954).

Varma (1982) stated that Schizophrenic thought expressed via language. He told linguistic competence is important to develop a delusional system. Varma et al (1985) stated that language contribution in thinking process is immense. It makes logical and realistic deductions. But if basic abnormalities is in brain process, derailment of thinking creates vicious cycle and perpetuate psychopathology.

He told paranoids have high linguistic competence sothat their psychotic anxiety is explained on the basis of paranoid ideation which ends in systemisation of delusions. Low linguistic competence does not permit to develop delusional system and their psychotic anxiety leads to catatonic features and somatic symptoms.

Chomsky (1965) and Clemmen also held that language dysfunction in Schizophrenia is more cognitive rather than linguistic. Varma et al. (1985) stated

that linguistic competency determines the presentation and outcome of Schizophrenic within and across different group.

John G. Kern and Horward Berenbaum (2002) stated that 5 studies examined association between language production and FTD has not supported a general association between them. But it suggests that some facets of FTD could be associated with impaired language production.

Berenbaum and Barch (1995) stated that neologism, word approximation, incoherence are associated with impaired language production.

Barch and Berenbaum (1996) argued that non word speech errors are rare in normal people. But it is increasingly found in impaired language production. Like wise non word speech errors are more in people with neologism and word approximation. Other facets of FTD were not associated. They stated that some facets of FTD could be associated with impaired language production.

Landre, Taylor, Kern (1992) studied 10 people of Schizophrenia and 10 people of aphasia and found that there was no significant differences.

Faher et al (1983) reported that 9 of 14 language abnormalities assessed, there was no significant difference between FTD and aphasia people.

John Kern et al. (2002) concluded that possibilities of subset of FTD facet associated with impaired language production is high.

Crow (1997) stated that “Schizophrenia could be the price Homo sapiens pay for language. Schizophrenic mutation must have evolved before modern Homo sapiens spread across the globe”. He argued that persistence of Schizophrenic mutation must be related to same development in cognitive ability of the species: language.

Covington et al (2005) stated that many Schizophrenia patients have dysfunctional linguistic ability and there must be relationship between them but manifestation differs per patient.

Salisbury (2010) stated that there was executive functioning related impairment to keep contextual information activated and use it appropriately in Schizophrenia. Andreou et al. (2009) stated that language impairment can differ depending on the phase of disorder.

Researchers studying language abnormalities in Schizophrenia came from diverse group such as neurolinguistics, psycholinguistics, psychiatry and psychology (Tintone,2010).

Most studies of formal thought disorder and linguistic abnormalities are conducted by psychiatrists, psychologists and neurologists.

Psychiatrists view language abnormalities as problem in communication of thought (Chaika,1990). Distorted thought process assumed to be the basis for deviant speech.

But psycholinguistics differ that language and thought cannot be equated fully.

Linguistics see language as interrelated system (Chaika, 2009) as phonetics, semantics and syntax. It is totally different from psychiatrists' view. Analysis of Schizophrenic speech on linguistic level offer insight into the mechanisms that cause speech abnormalities in Schizophrenia.

“Chomsky has steered the discipline of linguistics away from behavioural account of language learning into domain of cognitive sciences and language acquisition” (Grimaldi,2012). “He termed universal grammar that is explaining the possibility of our having so much knowledge of native language even though during the critical period of language acquisition the spoken input is insufficient” (Chomsky,2012).

Chomsky placed language in mind brain (cited by Grimaldi,2012). The idea that language is a biological system, formal thought disorders could be resulted from underlying basic language abnormalities. Involvement of psycholinguistics could help more accurate diagnosis and evaluation in the area of linguistic abnormalities of schizophrenia.

Goldforh et al (1994) and Oh et al (2002) found enough dissimilarities between aphasic speech and Schizophrenic speech and they rejected that Schizophrenic speech is type of aphasia.

Kerns and Berenbaum(2002) suggested future research which specific facets are associated with language production impairment.

Linguistic research of Schizophrenia make theories of semantic access and discourse organisation benefit from insight of psychiatric patients. Focussing on linguistic level provide more precise investigation on factors of linguistic abnormalities in schizophrenia.

As for now current tool of formal thought disorder mainly based on observation, linguistic research can quantify abnormalities of Schizophrenic speech and make objective diagnostic method.

The psychiatrists and linguistics collaboration is much needed one in research of thought language communication disorders.

3. AIMS AND OBJECTIVES

AIMS:

To examine type, severity, prevalence of thought, language, communication disorder in schizophrenia and difference between acute episode of schizophrenia and chronic institutionalized schizophrenia and also examine correlation between thought, language, communication disorder with socio demographic variables.

OBJECTIVES:

- 1) To examine type, severity, prevalence of thought, language, communication disorder in schizophrenia.
- 2) To examine difference between acute episode of schizophrenia and chronic institutionalized schizophrenia.
- 3) To examine correlation between thought, language, communication disorder with socio demographic variables.

HYPOTHESIS

NULL HYPOTHESIS

There is no significant difference in type, severity, prevalence of thought, language, communication disorder in schizophrenia.

There is no significant difference in thought, language, communication disorder in acute episodes of schizophrenia and chronic institutionalized schizophrenia.

There is no significant correlation of thought, language, communication disorder with sociodemographic variables.

4. MATERIALS AND METHODS

SETTING:

The study was conducted in Institute of Mental health, Madras Medical College, Chennai, a tertiary care centre for Tamil Nadu. The necessary prior permission for conduct of the study was obtained from Institutional Ethics Committee, Madras Medical College, Chennai.

STUDY POPULATION:

In-patients of institute of mental health, Chennai are taken for study. Acute episode of schizophrenia patients are those who are admitted as in-patients, within first week of admission. Chronic institutionalized patients are those who are as in-patients for more than 2 years time period.

SAMPLE SIZE:

A total of 100 sample size with 50 acute episode of schizophrenia patients and 50 chronic institutionalized (in-patients > 2 years duration) schizophrenia patients.

PERIOD OF STUDY:

The study was conducted for a total of 3 months from June 2016 to August 2016

SAMPLING METHOD:

Random sampling.

STUDY DESIGN:

Cross sectional study

INCLUSION CRITERIA:

- 1) Patients with Schizophrenia diagnosed as per ICD 10
- 2) Age between 18 – 50 yrs
- 3) Both sex
- 4) Who are giving written informed consent
- 5) Duration of illness

Acute episodes of schizophrenics

Chronic institutionalized patients <2years

EXCLUSION CRITERIA:

- 1) Epilepsy
- 2) Organic mental disorder
- 3) Patient with physical illness
- 4) Mental retardation
- 5) Substance abuse

PROCEDURE:

After ethical committee approval , Patients were recruited from inpatients of Institute of mental health .To be incorporated into the study, patients needed to satisfy criteria for schizophrenia based on ICD-10 and for case selection-cases had to be aged between 18 and 50 years; incorporated from all socioeconomic and educational classes. . An informed consent was obtained from all participants. Further data regarding collection of socio-demographic information with respect to age , sex , education, marital status , employment ,disorder related , and other tools as follows used. Details statistically analysed using SPSS 20 (statistical analysis software).

Semistructured proforma to collect data systematically are used. The demographic variables such as name, age, sex, marital status, education, socioeconomic status, occupation, rural, urban were recored.

The clinical details such as age of onset, type of onset, duration of illness, presenting illness, family history, past history and course of illness were recorded.

Mental status examination was assessed by structured interview with Positive and negative symptoms of schizophrenia (PANSS) Scale. The mini mental status (MMSE) examination scale was used to rule out any cognitive imparment (Folstein et. al 1975).

All patients were evaluated by using the scale for assessment of thought, language and communication (TLC) (Andreassen 1978) in 45 minutes standard interview.

TOOLS USED:

SEMI STRUCTURED INTERVIEW SCHEDULE :

The schedule was developed for the study to collect data regarding the following

- 1) Socio demographic details
- 2) Disease related characteristics
- 3) ICD-10 for diagnosing schizophrenia
- 4) Positive and negative symptoms of schizophrenia (PANSS) Scale.
- 5) Mini mental status examination scale
- 6) scale for assessment of thought, language and communication (TLC)
(Andreassen 1978)

DETAILS OF INSTRUMENTS USED:

- 1) Socio demographic data sheet :

A structured proforma was used to elicit information about the demographic details and illness attributes of the patients with schizophrenia.

- 2) Positive and negative symptoms of schizophrenia (PANSS) Scale

This scale is used for assessing symptoms and severity of schizophrenia. It was published by Stanley Kay, Lewis Opler and Abraham Fiszben. It refers to two types of schizophrenia: positive symptoms (excess or distortions of normal function), negative symptom (diminution or loss of normal function). Patients are rated from 1-7 on 30 different symptoms based on severity. It has positive scale 7, negative scale 7 and general psychopathology scale 16 symptoms.

3) Mini mental status examination test

It is a 30-point questionnaire. It is used extensively in clinical and research settings in cognitive impairment and also used to differentiate organic from functional psychiatric patients.

It was introduced by Folstein et al. 1975. It examines functions including orientation, registration, attention and calculation, recall, language, ability to follow simple commands.

Scoring more than or equal to 24 indicates normal cognitive functions. Less than it indicates cognitive impairment. Raw score is corrected for education attainment and age.

4) Andreasen scale for assessment of thought, language and communication (Andreasen 1978).

It was developed to clarify the existing confusion of thought and its measurement.

It has a set of definitions that could be used clinically. It has high reliability

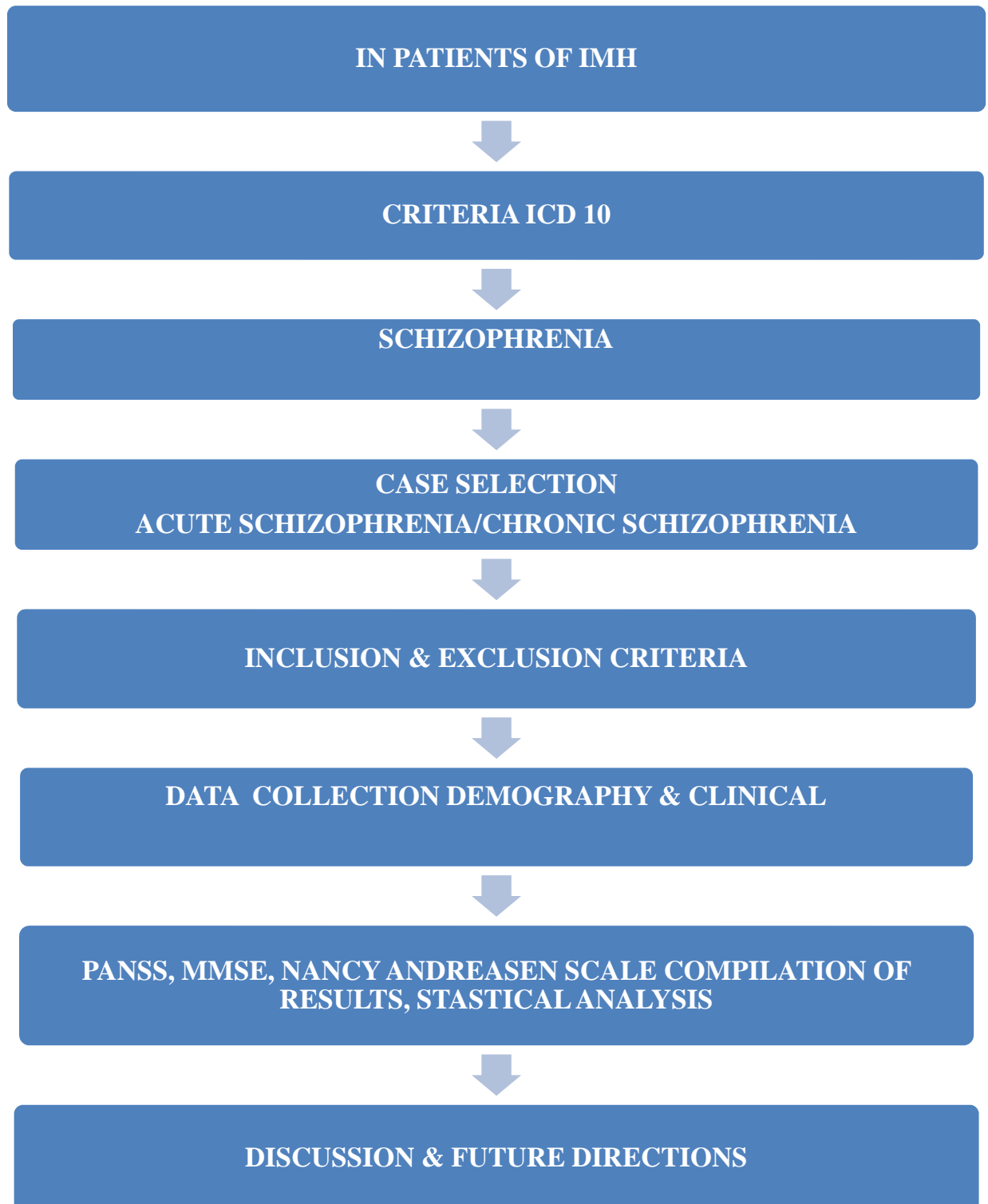
(Andreasen 1979a, 1979b). It relies on naturalistic observation of language behavior as a way of evaluating thought disorder. It contains 18 subtypes of thought disorder often observed in psychiatric patients. It has a rating severity of a 0-3 or 0-4 scale. Severity is assessed by frequency with particular phenomenon has been observed. These definitions are empirical, atheoretical. Rating done by live interview, taped interview, transcribed interview and combinations any of three. It also contains instructions for making a global rating. It has definitions for positive and negative thought disorder. Global assessment of overall severity of TLC disorder is done by two ways. It could be literally be related globally using rating scale. Another way is to summate the scores on each of TLC items. The interrater reliability is excellent (Andreasen 1979a).

STATISTICAL DESIGN AND USED STATISTICAL TOOL:

Significance level is fixed as 5% ($\alpha = 0.05$). **(If P-Value is <0.05 then statistically significant).**

Independent t test, chi square test, mean, standard deviation, standard error mean

OPERATIONAL DESIGN



5. RESULTS

Table 1:

Gender distribution and schizophrenia – acute & chronic schizophrenia

		DURATION_OF_ILLN ESS		Total
		Acute sch.	Chronic sch.	
SEX	Male	Count 26	26	52
		% within DURATION_OF_IL LNESS 52.0%	52.0%	52.0 %
SEX	Female	Count 24	24	48
		% within DURATION_OF_IL LNESS 48.0%	48.0%	48.0 %
Total		Count 50	50	100
		% within DURATION_OF_IL LNESS 100.0%	100.0%	100. 0%

- 1) Acute and chronic schizophrenia are equal distributed
- 2) Male 52% , Female 48%

Table 2:

SCHIZOPHRENIA TYPE * DURATION OF ILLNESS Crosstabulation:

			DURATION_OF_I LLNESS		Total
			Acute	Chronic	
Schizophrenia type	Paranoid	Count % within DURATION OF ILLNESS	24 48.0%	9 18.0%	33 33.0%
	Non Paranoid	Count % within DURATION OFILLNESS	26 52.0%	41 82.0%	67 67.0%
Total		Count % within DURATION OF ILLNESS	50 100.0%	50 100.0%	100 100.0%

- 1) Paranoid and non paranoid – no statistical difference in acute schizophrenia
- 2) Non paranoids are more in chronic schizophrenia

Table 3

Education:

	Frequency	Percent	Valid Percent	Cumulative Percent
Primary	42	42.0	42.0	42.0
Middle	18	18.0	18.0	60.0
High	22	22.0	22.0	82.0
UG	18	18.0	18.0	100.0
Total	100	100.0	100.0	

Till middle	60	60%
Above middle	40	40%
Total	100	100%

- 1) Low literacy (below class of 8) are 60%
- 2) High literacy (above class of 8) are 40%

Table 4

Urban vs rural

	Frequency	Percent
Rural	64	64.0
Urban	36	36.0
Total	100	100.0

- 1) Rural population are more 64%

Table 5

Socioeconomic status

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Low	85	85.0	85.0	85.0
Mid	12	12.0	12.0	97.0
Upper	3	3.0	3.0	100.0
Total	100	100.0	100.0	

Low	85	85%
Above middle	15	15%

1) Low socio economic status population are high (85%)

Table 6

18 TLC* items and its frequency

TLC items	IMH study 2016	
	No	Percentage
NEOLOGISM	10	10%
WORD APPROXIMATION	2	2%
CLANGING	4	4%
POVERTY OF SPEECH	27	27%
POVERTY OF CONTENT OF SPEECH	39	39%
ILLOGICALITY	17	17%
PRESSURE OF SPEECH	48	48%
CIRCUMSTANTIALITY	16	16%
TANGENTIALITY	24	24%
DERAILMENT	47	47%
INCOHERENT	41	41%
LOSS OF GOAL	34	34%
DISTRACTIBLITY	6	6%
PERSEVERATION	1	1%
SELF REFERENCE	2	2%
stilled speech	0	0%
Echolalia	0	0%
Blocking	0	0%

- 1) >30%
Pressure of speech, Derailment, incoherence, poverty of content, loss of goal
- 2) 10-30%
Poverty of speech, tangentiality, illogicality, circumstantiality
- 3) < 10%
Neologism, distractibility, clanging, word approximation, perseveration, self reference
- 4) Stilted speech, echolalia, blocking not present

*TLC – thought, language, communication

Table 7

18 TLC items frequency (with percentage) in male and female in schizophrenia (total 100)

		SEX				p value
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM		7	70.0%	3	30.0%	0.94
WORD_APPROXIMATION		2	100.0%	0	0.0%	0.17
CLANGING		4	100.0%	0	0.0%	0.05*
POVERTY OF SPEECH		10	37.0%	17	63.0%	0.06
POVERTY_OF_CONTENT		22	56.4%	17	43.6%	0.82
ILLOGICALITY		11	64.7%	6	35.3%	0.25
PRESSURE_OF_SPEECH		26	54.2%	22	45.8%	0.28
CIRCUMSTANTIALITY		13	81.2%	3	18.8%	0.03*
TANGENTIALITY		16	66.7%	8	33.3%	0.18
DERAILMENT		31	66.0%	16	34.0%	0.02*
INCOHERENT		15	36.6%	26	63.4%	0.00*
LOSS_OF_GOAL		24	70.6%	10	29.4%	0.04*
DISTRACTIBILITY		0	0.0%	0	0.0%	0.02*
PERSEVERATION		6	100.0%	0	0.0%	0.34
SELF_REFERENCE		1	100.0%	0	0.0%	0.17
ECHOLALIA		0	0.0%	0	0.0%	0.94
BLOCKING		2	100.0%	0	0.0%	0.17
STILTED_SPEECH		0	0.0%	0	0.0%	0.05*

*p<0.05

- 1) Clanging, circumstantiality, derailment, loss of goal are more in male.
- 2) Incoherence are more in female.

Table 8

18 variables frequency (with percentage) in acute and chronic schizophrenia (total 100)

		DURATION OF ILLNESS				P value
		Acute		Chronic		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	6	60.0%	4	40.0%	.566
WORD_APPROXIMATION	Yes	1	50.0%	1	50.0%	1.000
CLANGING	Yes	4	100.0%	0	0.0%	.042*
POVERTY_OF_SPEECH	Yes	13	48.1%	14	51.9%	.943
POVERTY_OF_CONTENT	Yes	14	35.9%	25	64.1%	.011*
ILLOGICALITY	Yes	11	64.7%	6	35.3%	.187
PRESSURE_OF_SPEECH	Yes	34	70.8%	14	29.2%	.001*
CIRCUMSTANTIALITY	Yes	8	50.0%	8	50.0%	.833
TANGENTIALITY	Yes	15	62.5%	9	37.5%	.312
DERAILMENT	Yes	21	44.7%	26	55.3%	.194
INCOHERENT	Yes	15	36.6%	26	63.4%	.022*
LOSS_OF_GOAL	Yes	18	52.9%	16	47.1%	1.000
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	2	33.3%	4	66.7%	.320
SELF_REFERENCE	Yes	0	0.0%	1	100.0%	1.000
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	1	50.0%	1	50.0%	1.000
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--

- 1) Pressure of speech, clanging more in acute schizophrenia
- 2) Poverty of content, incoherence more in chronic schizophrenia

Table 9

18 variables frequency (with percentage) in male and female in acute schizophrenia (total 50)

		SEX				P value
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	5	83.3%	1	16.7%	.106
WORD_APPROXIMATION	Yes	1	100.0%	0	0.0%	.342
CLANGING	Yes	4	100.0%	0	0.0%	.046*
POVERTY_OF_SPEECH	Yes	6	46.2%	7	53.8%	.354
POVERTY_OF_CONTENT	Yes	10	71.4%	4	28.6%	.115
ILLOGICALITY	Yes	6	54.5%	5	45.5%	.852
PRESSURE_OF_SPEECH	Yes	17	50.0%	17	50.0%	.492
CIRCUMSTANTIALITY	Yes	7	87.5%	1	12.5%	.054
TANGENTIALITY	Yes	12	80.0%	3	20.0%	.011*
DERAILMENT	Yes	17	81.0%	4	19.0%	.001*
INCOHERENT	Yes	8	53.3%	7	46.7%	.860
LOSS_OF_GOAL	Yes	16	88.9%	2	11.1%	.001*
PERSEVERATION	Yes	2	100.0%	0	0.0%	.172
SELF_REFERENCE	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	1	100.0%	0	0.0%	.342
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--

1) Tangentiality, derailment, loss of goal, clanging are more in male.

Table 10

18 variables frequency (with percentage) in male and female in chronic schizophrenia (total 50)

		SEX				P value
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	50.0%	2	50.0%	.477
WORD_APPROXIMATION	Yes	1	100.0%	0	0.0%	.342
CLANGING	Yes	0	0.0%	0	0.0%	--
POVERTY_OF_SPEECH	Yes	4	28.6%	10	71.4%	.081
POVERTY_OF_CONTENT	Yes	12	48.0%	13	52.0%	.331
ILLOGICALITY	Yes	5	83.3%	1	16.7%	.106
PRESSURE_OF_SPEECH	Yes	9	64.3%	5	35.7%	.350
CIRCUMSTANTIALITY	Yes	6	75.0%	2	25.0%	.248
TANGENTIALITY	Yes	4	44.4%	5	55.6%	.511
DERAILMENT	Yes	14	53.8%	12	46.2%	.789
INCOHERENT	Yes	7	26.9%	19	73.1%	.001*
LOSS_OF_GOAL	Yes	8	50.0%	8	50.0%	.438
PERSEVERATION	Yes	4	100.0%	0	0.0%	.061
SELF_REFERENCE	Yes	1	100.0%	0	0.0%	.342
BLOCKING	Yes	1	100.0%	0	0.0%	.342
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--

1) Poverty of speech, incoherence more in female

Table 11

18 variables frequency (with percentage) in paranoid and non-paranoid schizophrenia (total 100)

		SCHIZOPHRENIA_TYPE				P value
		Paranoid		Non Paranoid		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	5	50.0%	5	50.0%	.098
WORD_APPROXIMATION	Yes	2	100.0%	0	0.0%	.042*
CLANGING	Yes	4	100.0%	0	0.0%	0.003*
POVERTY_OF_SPEECH	Yes	3	11.1%	24	88.9%	.012*
POVERTY_OF_CONTENT	Yes	9	23.1%	30	76.9%	.044*
ILLOGICALITY	Yes	11	64.7%	6	35.3%	.002*
PRESSURE_OF_SPEECH	Yes	26	54.2%	22	45.8%	.001*
CIRCUMSTANTIALITY	Yes	8	50.0%	8	50.0%	.047*
TANGENTIALITY	Yes	10	41.7%	14	58.3%	.140
DERAILMENT	Yes	8	17.0%	39	83.0%	.001*
INCOHERENT	Yes	6	14.6%	35	85.4%	.001*
LOSS_OF_GOAL	Yes	9	26.5%	25	73.5%	.280
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	2	33.3%	4	66.7%	.823
SELF_REFERENCE	Yes	1	100.0%	0	0.0%	.155
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	0	0.0%	2	100.0%	0.321
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--

- 1) Word approximation, clanging, illogicality, circumstantiality more in paranoid schizophrenia
- 2) Poverty of speech, derailment, incoherence more in non paranoid schizophrenia

Table 12

18 variables frequency (with percentage) in male and female in paranoid schizophrenia

		SEX				P value
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	40.0%	3	60.0%	.345
WORD_APPROXIMATION	Yes	2	100.0%	0	0.0%	.117
CLANGING	Yes	4	100.0%	0	0.0%	.019*
POVERTY_OF_SPEECH	Yes	1	33.3%	2	66.7%	.526
POVERTY_OF_CONTENT	Yes	6	66.7%	3	33.3%	.272
ILLOGICALITY	Yes	5	45.5%	6	54.5%	1.000
PRESSURE_OF_SPEECH	Yes	11	42.3%	15	57.7%	.455
CIRCUMSTANTIALITY	Yes	5	62.5%	3	37.5%	.397
TANGENTIALITY	Yes	7	70.0%	3	30.0%	.121
DERAILMENT	Yes	7	87.5%	1	12.5%	.005*
INCOHERENT	Yes	3	50.0%	3	50.0%	.666
LOSS_OF_GOAL	Yes	7	77.8%	2	22.2%	.096
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	2	100.0%	0	0.0%	.117
SELF_REFERENCE	Yes	1	100.0%	0	0.0%	.280
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	0	0.0%	0	0.0%	
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	

1) Clanging, derailment more in male

Table 13

18 variables frequency (with percentage) in male and female in non- paranoid schizophrenia

		SEX				P value
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	5	100.0%	0	0.0%	.049*
WORD_APPROXIMATION	Yes	0	0.0%	0	0.0%	
CLANGING	Yes	0	0.0%	0	0.0%	
POVERTY_OF_SPEECH	Yes	9	37.5%	15	62.5%	.033*
POVERTY_OF_CONTENT	Yes	16	53.3%	14	46.7%	.573
ILLOGICALITY	Yes	6	100.0%	0	0.0%	.021*
PRESSURE_OF_SPEECH	Yes	15	68.2%	7	31.8%	.106
CIRCUMSTANTIALITY	Yes	8	100.0%	0	0.0%	.007*
TANGENTIALITY	Yes	9	64.3%	5	35.7%	.555
DERAILMENT	Yes	24	61.5%	15	38.5%	.328
INCOHERENT	Yes	12	34.3%	23	65.7%	.001*
LOSS_OF_GOAL	Yes	17	68.0%	8	32.0%	.211
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	4	100.0%	0	0.0%	.083
SELF_REFERENCE	Yes	0	0.0%	0	0.0%	--
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	2	100.0%	0	0.0%	.202
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--

- 1) Neologism, illogicality, circumstantiality more in male
- 2) Poverty of speech, incoherence more in female

Table 14

18 variables frequency (with percentage) in acute and chronic paranoid schizophrenia

		DURATION OF ILLNESS				P value
		Acute		Chronic		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	3	60.0%	2	40.0%	.068
WORD_APPROXIMATION	Yes	1	50.0%	1	50.0%	.472
CLANGING	Yes	4	100.0%	0	0.0%	.203
POVERTY_OF_THOUGHT	Yes	3	100.0%	0	0.0%	.285
POVERTY_OF_CONTENT	Yes	3	33.3%	6	66.7%	.002*
ILLOGICALITY	Yes	7	63.6%	4	36.4%	.423
PRESSURE_OF_SPEECH	Yes	21	80.8%	5	19.2%	.243
CIRCUMSTANTIALITY	Yes	4	50.0%	4	50.0%	.052
TANGENTIALITY	Yes	6	60.0%	4	40.0%	.276
DERAILMENT	Yes	6	75.0%	2	25.0%	.873
INCOHERENT	Yes	4	66.7%	2	33.3%	.841
LOSS OF GOAL	Yes	6	66.7%	3	33.3%	.342
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	1	50.0%	1	50.0%	.472
SELF_REFERENCE	Yes	0	0.0%	1	100.0%	.103
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	0	0.0%	0	0.0%	--
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	--

1) Poverty of content more in chronic paranoid schizophrenia

Table 15

18 variables frequency (with percentage) in acute and chronic non-paranoid schizophrenia

		DURATION OF ILLNESS				
		Acute		Chronic		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	3	60.0%	2	40.0%	.620
WORD_APPROXIMATION	Yes	0	0.0%	0	0.0%	
CLANGING	Yes	0	0.0%	0	0.0%	
POVERTY_OF_THOUGHT	Yes	10	41.7%	14	58.3%	.608
POVERTY_OF_CONTENT	Yes	11	36.7%	19	63.3%	.464
ILLOGICALITY	Yes	4	66.7%	2	33.3%	.147
PRESSURE_OF_SPEECH	Yes	13	59.1%	9	40.9%	.025*
CIRCUMSTANTIALITY	Yes	4	50.0%	4	50.0%	.505
TANGENTIALITY	Yes	9	64.3%	5	35.7%	.085
DERAILMENT	Yes	15	38.5%	24	61.5%	.773
INCOHERENT	Yes	11	31.4%	24	68.6%	.200
LOSS_OF_GOAL	Yes	12	48.0%	13	52.0%	.338
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	1	25.0%	3	75.0%	.461
SELF_REFERENCE	Yes	0	0.0%	0	0.0%	
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	1	50.0%	1	50.0%	.746
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	

1) Pressure of speech more in acute non paranoid schizophrenia

Table 16

18 variable frequency (with percentage) in male and female in acute paranoid schizophrenia

DURATION OF ILLNESS

		Acute				p value
		SEX				
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	66.7%	1	33.3%	0.265
WORD APPROXIMATION	Yes	1	100.0%	0	0.0%	0.187
CLANGING	Yes	4	100.0%	0	0.0%	.005 [*]
POVERTY OF THOUGHT	Yes	1	33.3%	2	66.7%	.238
POVERTY OF CONTENT	Yes	3	100.0%	0	0.0%	.0017 [*]
ILLOGICALITY	Yes	2	28.6%	5	71.4%	0.562
PRESSURE OF SPEECH	Yes	8	38.1%	13	61.9%	0.873
CIRCUMSTANTIALITY	Yes	3	75.0%	1	25.0%	0.090
TANGENTIALITY	Yes	5	83.3%	1	16.7%	.007 [*]
DERAILMENT	Yes	6	100.0%	0	0.0%	p<0.001 [*]
INCOHERENT	Yes	2	50.0%	2	50.0%	0.572
LOSS OF GOAL	Yes	6	100.0%	0	0.0%	.000 [*]
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	1	100.0%	0	0.0%	166
SELF REFERENCE	Yes	0	0.0%	0	0.0%	--
ECHOLALIA	Yes	0	0.0%	0	0.0%	--
BLOCKING	Yes	0	0.0%	0	0.0%	--
STILTED SPEECH	Yes	0	0.0%	0	0.0%	--

- 1) Poverty of content, tangentiality, derailment, clanging more in male / acute paranoid schizophrenia

Table 17

Variable frequency (with percentage) in male and female in chronic paranoid schizophrenia

		Chronic				
		SEX				
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	0	0.0%	2	100.0%	0.023*
WORD APPROXIMATION	Yes	1	100.0%	0	0.0%	0.453
CLANGING	Yes	0	0.0%	0	0.0%	
POVERTY OF THOUGHT	Yes	0	0.0%	0	0.0%	
POVERTY OF CONTENT	Yes	3	50.0%	3	50.0%	0.134
ILLOGICALITY	Yes	3	75.0%	1	25.0%	0.635
PRESSURE OF SPEECH	Yes	3	60.0%	2	40.0%	0.635
CIRCUMSTANTIALITY	Yes	2	50.0%	2	50.0%	0.343
TANGENTIALITY	Yes	2	50.0%	2	50.0%	0.343
DERAILMENT	Yes	1	50.0%	1	50.0%	0.571
INCOHERENT	Yes	1	50.0%	1	50.0%	0.571
LOSS OF GOAL	Yes	1	33.3%	2	66.7%	0.134
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	
PERSEVERATION	Yes	1	100.0%	0	0.0%	0.453
SELF REFERENCE	Yes	1	100.0%	0	0.0%	0.453
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	0	0.0%	0	0.0%	
STILTED SPEECH	Yes	0	0.0%	0	0.0%	

1) Neologism more in female/ chronic paranoid schizophrenia

Table 18

18 variable frequency (with percentage) in male and female in acute non-paranoid schizophrenia

		Acute				
		SEX				
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	3	100.0%	0	0.0%	0.180
WORD APPROXIMATION	Yes	0	0.0%	0	0.0%	
CLANGING	Yes	0	0.0%	0	0.0%	
POVERTY OF THOUGHT	Yes	5	50.0%	5	50.0%	
POVERTY OF CONTENT	Yes	7	63.6%	4	36.4%	0.107
ILLOGICALITY	Yes	4	100.0%	0	0.0%	0.114
PRESSURE OF SPEECH	Yes	9	69.2%	4	30.8%	0.680
CIRCUMSTANTIALITY	Yes	4	100.0%	0	0.0%	.114
TANGENTIALITY	Yes	7	77.8%	2	22.2%	.334
DERAILMENT	Yes	11	73.3%	4	26.7%	0.320
INCOHERENT	Yes	6	54.5%	5	45.5%	0.075
LOSS OF GOAL	Yes	10	83.3%	2	16.7%	0.041*
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	
PERSEVERATION	Yes	1	100.0%	0	0.0%	0.458
SELF REFERENCE	Yes	0	0.0%	0	0.0%	
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	1	100.0%	0	0.0%	0.332
STILTED SPEECH	Yes	0	0.0%	0	0.0%	

1) Loss of goal more in male / acute non paranoid schizophrenia

Table 19

18 variable frequency (with percentage) in male and female in chronic non-paranoid schizophrenia

		Chronic				
		SEX				
		Male		Female		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	100.0%	0	0.0%	0.137
WORD APPROXIMATION	Yes	0	0.0%	0	0.0%	
CLANGING	Yes	0	0.0%	0	0.0%	
POVERTY OF THOUGHT	Yes	4	28.6%	10	71.4%	0.062
POVERTY OF CONTENT	Yes	9	47.4%	10	52.6%	0.867
ILLOGICALITY	Yes	2	100.0%	0	0.0%	0.137
PRESSURE OF SPEECH	Yes	6	66.7%	3	33.3%	0.224
CIRCUMSTANTIALITY	Yes	4	100.0%	0	0.0%	0.031*
TANGENTIALITY	Yes	2	40.0%	3	60.0%	0.675
DERAILMENT	Yes	13	54.2%	11	45.8%	0.412
INCOHERENT	Yes	6	25.0%	18	75.0%	p<0.001*
LOSS OF GOAL	Yes	7	53.8%	6	46.2%	0.658
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	
PERSEVERATION	Yes	3	100.0%	0	0.0%	0.65
SELF REFERENCE	Yes	0	0.0%	0	0.0%	
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	1	100.0%	0	0.0%	0.3
STILTED SPEECH	Yes	0	0.0%	0	0.0%	

- 1) Circumstantiality more in male/ chronic non paranoid schizophrenia
- 2) Incoherence more in female/ chronic non paranoid schizophrenia

Table 20

Education

18 variable frequency (with percentage) in upto middle and above education (total 100)

		EDUCATION				
		Till Middle		Above Middle		
		Count	Row N %	Count	Row N %	
NEOLOGISM	yes	6	60.0%	4	40.0%	1
WORD_APPROXIMATION	yes	2	100.0%	0	0.0%	0.243
CLANGING	yes	2	50.0%	2	50.0%	0.677
POVERTY_OF_SPEECH	yes	20	74.1%	7	25.9%	0.081
POVERTY_OF_CONTENT	yes	25	64.1%	14	35.9%	0.503
ILLOGICALITY	yes	7	41.2%	10	58.8%	0.082
PRESSURE_OF_SPEECH	yes	23	47.9%	25	52.1%	0.018*
CIRCUMSTANTIALITY	yes	6	37.5%	10	62.5%	0.045*
TANGENTIALITY	yes	14	58.3%	10	41.7%	0.848
DERAILMENT	yes	29	61.7%	18	38.3%	0.744
INCOHERENT	yes	27	65.9%	14	34.1%	0.319
LOSS OF GOAL	yes	21	61.8%	13	38.2%	0.796
DISTRACTIBILITY	yes	0	0.0%	0	0.0%	
PERSEVERATION	yes	5	83.3%	1	16.7%	0.229
SELF REFERENCE	yes	0	0.0%	1	100.0%	0.218
ECHOLALIA	yes	0	0.0%	0	0.0%	
BLOCKING	yes	2	100.0%	0	0.0%	0.43
STILTED_SPEECH	yes	0	0.0%	0	0.0%	

1) Pressure of speech, circumstantiality more in high literate groups

Table 21

18 variable frequency (with percentage) in upto middle and above in acute schizophrenia

		EDUCATION				
		Till Middle		Above Middle		
		Count	Row N %	Count	Row N %	
NEOLOGISM	yes	5	83.3%	1	16.7%	0.101
WORD_APPROXIMATION	yes	1	100.0%	0	0.0%	0.332
CLANGING	yes	2	50.0%	2	50.0%	0.933
POVERTY_OF_SPEECH	yes	8	61.5%	5	38.5%	0.424
POVERTY_OF_CONTENT	yes	9	64.3%	5	35.7%	0.278
ILLOGICALITY	yes	4	36.4%	7	63.6%	0.240
PRESSURE_OF_SPEECH	yes	17	50.0%	17	50.0%	0.680
CIRCUMSTANTIALITY	yes	3	37.5%	5	62.5%	0.370
TANGENTIALITY	yes	10	66.7%	5	33.3%	0.174
DERAILMENT	yes	13	61.9%	8	38.1%	0.233
INCOHERENCE	yes	9	60.0%	6	40.0%	0.459
LOSS_OF_GOAL	yes	13	72.2%	5	27.8%	0.032*
DISTRACTIBILITY	yes	0	0.0%	0	0.0%	
PERSEVERATION	yes	2	100.0%	0	0.0%	0.166
SELF_REFERENCE	yes	0	0.0%	0	0.0%	
ECHOLALIA	yes	0	0.0%	0	0.0%	0.332
BLOCKING	yes	1	100.0%	0	0.0%	
STILTED_SPEECH	yes	0	0.0%	0	0.0%	

1) Loss of goal more in low literate group/ acute schizophrenia

Table 22

18 variable frequency (with percentage) in upto middle and above in chronic schizophrenia

		EDUCATION				
		Till Middle		Above Middle		
		Count	Row N %	Count	Row N %	
NEOLOGISM	yes	1	25.0%	3	75.0%	0.055
WORD_APPROXIMATION	yes	1	100.0%	0	0.0%	0.488
CLANGING	yes	0	0.0%	0	0.0%	
POVERTY_OF_SPEECH	yes	12	85.7%	2	14.3%	0.094
POVERTY_OF_CONTENT	yes	16	64.0%	9	36.0%	0.544
ILLOGICALITY	yes	3	50.0%	3	50.0%	0.314
PRESSURE_OF_SPEECH	yes	6	42.9%	8	57.1%	0.017*
CIRCUMSTANTIALITY	yes	3	37.5%	5	62.5%	0.044*
TANGENTIALITY	yes	4	44.4%	5	55.6%	0.094
DERAILMENT	yes	16	61.5%	10	38.5%	0.846
INCOHERENT	yes	18	69.2%	8	30.8%	0.061
LOSS_OF_GOAL	yes	8	50.0%	8	50.0%	
DISTRACTIBILITY	yes	0	0.0%	0	0.0%	0.754
PERSEVERATION	yes	3	75.0%	1	25.0%	0.141
SELF_REFERENCE	yes	0	0.0%	1	100.0%	
ECHOLALIA	yes	0	0.0%	0	0.0%	
BLOCKING	yes	1	100.0%	0	0.0%	0.488
STILTED_SPEECH	yes	0	0.0%	0	0.0%	

- 1) Pressure of speech, circumstantiality more in high literate group/ chronic schizophrenia

Table 23

18 variable frequency (with percentage) in upto middle and above in paranoid schizophrenia

		EDUCATION				
		Till Middle		Above Middle		
		Count	Row N %	Count	Row N %	
NEOLOGISM	yes	2	40.0%	3	60.0%	0.609
WORD_APPROXIMATION	yes	2	100.0%	0	0.0%	0.027*
CLANGING	yes	2	50.0%	2	50.0%	0.361
POVERTY_OF_SPEECH	yes	0	0.0%	3	100.0%	0.231
POVERTY_OF_CONTENT	yes	4	44.4%	5	55.6%	0.279
ILLOGICALITY	yes	2	18.2%	9	81.8%	0.284
PRESSURE_OF_SPEECH	yes	8	30.8%	18	69.2%	0.911
CIRCUMSTANTIALITY	yes	0	0.0%	8	100.0%	0.032*
TANGENTIALITY	yes	4	40.0%	6	60.0%	0.424
DERAILMENT	yes	2	25.0%	6	75.0%	0.708
INCOHERENT	yes	0	0.0%	6	100.0%	0.074
LOSS_OF_GOAL	yes	2	22.2%	7	77.8%	0.536
DISTRACTIBILITY	yes	0	0.0%	0	0.0%	
PERSEVERATION	yes	2	100.0%	0	0.0%	0.027*
SELF_REFERENCE	yes	0	0.0%	1	100.0%	0.503
ECHOLALIA	yes	0	0.0%	0	0.0%	
BLOCKING	yes	0	0.0%	0	0.0%	
STILTED_SPEECH	yes	0	0.0%	0	0.0%	

- 1) Word approximation, perseveration more in low literate group/paranoid schizophrenia
- 2) Circumstantiality more in high literate group/paranoid schizophrenia

Table 24

18 variable frequency (with percentage) in upto middle and above in non paranoid schizophrenia

		EDUCATION				
		Till Middle		Above Middle		
		Count	Row N %	Count	Row N %	
NEOLOGISM	yes	4	80.0%	1	20.0%	0.774
WORD_APPROXIMATION	yes	0	0.0%	0	0.0%	
CLANGING	yes	0	0.0%	0	0.0%	
POVERTY_OF_SPEECH	yes	20	83.3%	4	16.7%	0.221
POVERTY_OF__CONTENT	yes	21	70.0%	9	30.0%	0.433
ILLOGICALITY	yes	5	83.3%	1	16.7%	0.608
PRESSURE_OF_SPEECH	yes	15	68.2%	7	31.8%	0.397
CIRCUMSTANTIALITY	yes	6	75.0%	2	25.0%	0.979
TANGENTIALITY	yes	10	71.4%	4	28.6%	0.757
DERAILMENT	yes	27	69.2%	12	30.8%	0.231
INCOHERENT	yes	27	77.1%	8	22.9%	0.621
LOSS_OF_GOAL	yes	19	76.0%	6	24.0%	0.842
DISTRACTIBILITY	yes	0	0.0%	0	0.0%	
PERSEVERATION	yes	3	75.0%	1	25.0%	0.986
SELF_REFERENCE	yes	0	0.0%	0	0.0%	
ECHOLALIA	yes	0	0.0%	0	0.0%	
BLOCKING	yes	2	100.0%	0	0.0%	0.402*
STILTED_SPEECH	yes	0	0.0%	0	0.0%	

1) Blocking more in low literate group/non paranoid schizophrenia

Table 25

18 variable frequency (with percentage) in rural and urban in schizophrenia(total 100)

		PLACE				P value
		Rural		Urban		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	4	40.0%	6	60.0%	.065
WORD_APPROXIMATION	Yes	2	100.0%	0	0.0%	.289
CLANGING	Yes	0	0.0%	4	100.0%	.006*
POVERTY_OF_SPEECH	Yes	24	88.9%	3	11.1%	.003*
POVERTY_OF_CONTENT	Yes	26	66.7%	13	33.3%	.490
ILLOGICALITY	Yes	6	35.3%	11	64.7%	.006*
PRESSURE_OF_SPEECH	Yes	19	39.6%	29	60.4%	.001*
CIRCUMSTANTIALITY	Yes	7	43.8%	9	56.2%	.033
TANGENTIALITY	Yes	14	58.3%	10	41.7%	.363
DERAILMENT	Yes	33	70.2%	14	29.8%	.264
INCOHERENT	Yes	33	80.5%	8	19.5%	.001*
LOSS_OF_GOAL	Yes	23	67.6%	11	32.4%	.571
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	5	83.3%	1	16.7%	.714
SELF_REFERENCE	Yes	0	0.0%	1	100.0%	.184
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	2	100.0%	0	0.0%	.289
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	

- 1) Pressure of speech, illogicality, clanging more in urban group
- 2) Poverty of content, incoherent more in rural group

Table 26

18 variable frequency (with percentage) in rural and urban in acute schizophrenia(total 50)

		PLACE				
		Rural		Urban		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	33.3%	4	66.7%	.584
WORD_APPROXIMATION	Yes	1	100.0%	0	0.0%	.264
CLANGING	Yes	0	0.0%	4	100.0%	.067
POVERTY_OF_SPEECH	Yes	10	76.9%	3	23.1%	.007*
POVERTY_OF_CONTENT	Yes	7	50.0%	7	50.0%	.450
ILLOGICALITY	Yes	3	27.3%	8	72.7%	.214
PRESSURE_OF_SPEECH	Yes	11	32.4%	23	67.6%	.034*
CIRCUMSTANTIALITY	Yes	3	37.5%	5	62.5%	.672
TANGENTIALITY	Yes	8	53.3%	7	46.7%	.686
DERAILMENT	Yes	11	52.4%	10	47.6%	.289
INCOHERENT	Yes	9	60.0%	6	40.0%	.085
LOSS_OF_GOAL	Yes	11	61.1%	7	38.9%	.036*
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	
PERSEVERATION	Yes	2	100.0%	0	0.0%	.108
SELF_REFERENCE	Yes	0	0.0%	0	0.0%	
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	1	100.0%	0	0.0%	.264
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	

- 1) Pressure of speech more in urban group/ acute schizophrenia
- 2) Poverty of speech, loss of goal more in rural group/ acute schizophrenia

Table 27

18 variable frequency (with percentage) in rural and urban in chronic schizophrenia(total 50)

		PLACE				P value
		Rural		Urban		
		Count	Row N %	Count	Row N %	
NEOLOGISM	Yes	2	50.0%	2	50.0%	.006*
WORD_APPROXIMATION	Yes	1	100.0%	0	0.0%	.667
CLANGING	Yes	0	0.0%	0	0.0%	--
POVERTY_OF_SPEECH	Yes	14	100.0%	0	0.0%	.060
POVERTY_OF_CONTENT	Yes	19	76.0%	6	24.0%	.146
ILLOGICALITY	Yes	3	50.0%	3	50.0%	.015*
PRESSURE_OF_SPEECH	Yes	8	57.1%	6	42.9%	.001*
CIRCUMSTANTIALITY	Yes	4	50.0%	4	50.0%	.001*
TANGENTIALITY	Yes	6	66.7%	3	33.3%	.129
DERAILMENT	Yes	22	84.6%	4	15.4%	.787
INCOHERENT	Yes	24	92.3%	2	7.7%	.051
LOSS_OF_GOAL	Yes	12	75.0%	4	25.0%	.122
DISTRACTIBILITY	Yes	0	0.0%	0	0.0%	--
PERSEVERATION	Yes	3	75.0%	1	25.0%	.207
SELF REFERENCE	Yes	0	0.0%	1	100.0%	.020
ECHOLALIA	Yes	0	0.0%	0	0.0%	
BLOCKING	Yes	1	100.0%	0	0.0%	.667
STILTED_SPEECH	Yes	0	0.0%	0	0.0%	

1) Neologism, illogicality, circumstantiality more in urban group/ chronic schizophrenia

Table 28

Urban rural association in paranoid, non-paranoid schizophrenia

SCHIZOPHRENIA_TYPE * PLACE Crosstabulation

			PLACE		Total
			Rural	Urban	
SCHIZOPHRENIA_ TYPE	Paranoid	Count	3	6	9
		% within SCHIZOPHRENIA_ TYPE	33.3%	66.7%	100.0%
SCHIZOPHRENIA_ TYPE	Non Paranoid	Count	39	2	41
		% within SCHIZOPHRENIA_ TYPE	95.1%	4.9%	100.0%
Total		Count	42	8	50
		% within SCHIZOPHRENIA_ TYPE	84.0%	16.0%	100.0%

- 1) Paranoid schizophrenia more in urban group
- 2) Non paranoid more in rural group

Table 29

Education association in paranoid schizophrenia , non-paranoid schizophrenia

SCHIZOPHRENIA_TYPE * EDUCATION Crosstabulation							
			EDUCATION				Total
			Primary	Middle	High	UG	
SCHIZOPHRENIA_TYPE	Paranoid	Count	2	1	2	4	9
		% Paranoid	22.2%	11.1%	22.2%	44.4%	100.0%
	Non Paranoid	Count	27	4	9	1	41
		% within Non paranoid	65.9%	9.8%	22.0%	2.4%	100.0%
Total		Count	29	5	11	5	50
		% within SCHIZOPHRENIA_TYPE	58.0%	10.0%	22.0%	10.0%	100.0%

- 1) Paranoid more in high literate group
- 2) Non paranoid more in low literate group

Table 30

TLC disorder severity (assessing 18 variables score) in acute schizophrenia(total 50)

		1-2	3-4
NEOLOGISM	Count	6	0
	Row N %	12.0%	0.0%
WORD_APPROXIMATION	Count	1	0
	Row N %	2.0%	0.0%
CLANGING	Count	4	0
	Row N %	8.0%	0.0%
POVERTY_OF_THOUGHT	Count	1	12
	Row N %	2.0%	24.0%
POVERTY_OF__CONTENT	Count	8	6
	Row N %	16.0%	12.0%
ILLOGICALITY	Count	11	0
	Row N %	22.0%	0.0%
PRESSURE_OF_SPEECH	Count	16	18
	Row N %	32.0%	36.0%
CIRCUMSTANTIALITY	Count	5	3
	Row N %	10.0%	6.0%
TANGENTIALITY	Count	10	5
	Row N %	20.0%	10.0%
DERAILMENT	Count	16	5
	Row N %	32.0%	10.0%
INCOHERENT	Count	7	8
	Row N %	14.0%	16.0%
LOSS_OF_GOAL	Count	15	3
	Row N %	30.0%	6.0%
DISTRACTIBLITY	Count	0	0
	Row N %	0.0%	0.0%
PERSEVERATION	Count	2	0
	Row N %	4.0%	0.0%
SELF_REFERENCE	Count	0	0
	Row N %	0.0%	0.0%
ECHOLALIA	Count	0	0
	Row N %	0.0%	0.0%
BLOCKING	Count	1	0
	Row N %	2.0%	0.0%
STILTED_SPEECH	Count	0	0
	Row N %	0.0%	0.0%

- 1) Poverty of speech present as severe, extreme form
- 2) Poverty of content, pressure of speech, circumstantiality, incoherence present as equal severity
- 3) Circumstantiality, tangentiality, illogicality, loss of goal, perseveration, word approximation, neologism, blocking present as mild, moderate form.

Table 31

TLC disorder severity (assessing 18 variables score) in chronic schizophrenia(total
50

		1-2	3-4
NEOLOGISM	Count	2	2
	Row N %	4.0%	4.0%
WORD_APPROXI MATION	Count	1	0
	Row N %	2.0%	0.0%
CLANGING	Count	0	0
	Row N %	0.0%	0.0%
POVERTY_OF_SP EECH	Count	2	12
	Row N %	4.0%	24.0%
POVERTY_OF__C ONTENT	Count	8	17
	Row N %	16.0%	34.0%
ILLOGICALITY	Count	6	0
	Row N %	12.0%	0.0%
PRESSURE_OF_S PEECH	Count	5	9
	Row N %	10.0%	18.0%
CIRCUMSTANTI ALITY	Count	3	5
	Row N %	6.0%	10.0%
TANGENTIALITY	Count	3	6
	Row N %	6.0%	12.0%
DERAILMENT	Count	16	10
	Row N %	32.0%	20.0%
INCOHERENT	Count	10	16
	Row N %	20.0%	32.0%

LOSS_OF_GOAL	Count	9	7
	Row N %	18.0%	14.0%
DISTRACTIBLITY	Count	0	0
	Row N %	0.0%	0.0%
PERSEVERATION	Count	3	1
	Row N %	6.0%	2.0%
SELF_REFERENC E	Count	1	0
	Row N %	2.0%	0.0%
ECHOLALIA	Count	0	0
	Row N %	0.0%	0.0%
BLOCKING	Count	1	0
	Row N %	2.0%	0.0%
STILTED_SPEEC H	Count	0	0
	Row N %	0.0%	0.0%

- 1) word approximation, illogicalty, perseveration, self reference, blocking found as mild, moderate form
- 2) circumstantiality, poverty of content, poverty of speech, tangentiality, incoherence found as severe, extreme form
- 3) neologism, loss of goal found as equal form

Table 32

Formal thought disorder score (FTD score) vs acute schizophrenia and chronic schizophrenia

FTD	Acute		Chronic		P value
	Mean	Standard Deviation	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	9.20	4.85	8.20	4.61	0.293
NEGATIVE_FTD_SCORE	3.04	3.00	4.32	2.47	0.022*
LOOSE ASSO SCORE	8.48	5.07	7.72	4.61	0.435
POS_NEG_FTD	6.16	6.51	3.88	5.76	0.067

- 1) Negative formal thought disorder score more in chronic schizophrenia

Table 33

Formal thought disorder score with paranoid schizophrenia and non paranoid schizophrenia

	Paranoid n=33		Non Paranoid n=67		P value
	Mean	Standard Deviation	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	9.15	5.50	8.48	4.34	0.506
NEGATIVE_FTD_SCORE	1.94	2.76	4.54	2.43	0.001*
LOOSE ASSO SCORE	8.06	5.30	8.12	4.63	0.955
POS_NEG_FTD	7.21	6.74	3.94	5.70	0.013*

- 1) Negative formal thought disorder score more in non paranoid schizophrenia
- 2) Positive negative dichotomy score more in paranoid schizophrenia

Table 34

FTD score with acute schizophrenia- male, female

	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	26	11.15	3.63	24	7.08	5.17	0.002*
NEGATIVE_FTD_SCORE	26	3.15	2.66	24	2.92	3.39	0.783
LOOSE ASSO SCORE	26	10.54	4.68	24	6.25	4.58	0.002*
POS_NEG_FTD	26	8.00	5.60	24	4.17	6.95	0.036*

- 1) Positive FTD score more in male / acute schizophrenia
- 2) Loosening of association score in male/ acute schizophrenia
- 3) Positive negative dichotomy score more in male/ acute schizophrenia

Table 35

FTD score with chronic schizophrenia- male,female

	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	26	7.31	5.74	24	9.17	2.76	0.156
NEGATIVE_FTD_SCORE	26	3.31	2.83	24	5.42	1.38	0.002*
LOOSE ASSO SCORE	26	6.54	5.64	24	9.00	2.70	0.058
POS_NEG_FTD	26	4.00	7.38	24	3.75	3.40	0.88

- 1) Negative FTD score more in female/ chronic schizophrenia

Table 36

FTD score with male and female / paranoid schizophrenia

Paranoid	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	15	11.33	5.74	18	7.33	4.70	0.035*
NEGATIVE_FTD_SCORE	15	2.13	2.45	18	1.78	3.06	0.719
LOOSE ASSO SCORE	15	10.53	6.07	18	6.00	3.56	0.012*
POS_NEG_FTD	15	9.20	7.20	18	5.56	6.04	0.124

- 1) Positive FTD score more in male
- 2) Loosening of association score more in male

Table 37

FTD score with non paranoid schizophrenia

Non paranoid	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
POSITIVE_FTD_SCORE	37	8.38	4.69	30	8.60	3.94	0.837
NEGATIVE_FTD_SCORE	37	3.68	2.73	30	5.60	1.43	0.001*
LOOSE ASSO SCORE	37	7.73	5.15	30	8.60	3.94	0.448
POS_NEG_FTD	37	4.70	6.26	30	3.00	4.86	0.227

- 1) Negative FTD score more in female

Table 38

Disorder of thought , disorder of language, disorder of communication score in acute and chronic schizophrenia

	DURATION OF ILLNESS						P value
	Acute			Chronic			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
Disorder of thought	50	2.56	3.31	50	2.12	2.72	0.469
Disorder of language	50	2.00	2.52	50	3.16	2.77	0.031*
Disorder of communication	50	9.42	7.90	50	9.14	7.58	0.857

1) Disorder of language score more in chronic schizophrenia

Table 39

Disorder of thought , disorder of language, disorder of communication score in paranoid and non-paranoid schizophrenia

	SCHIZOPHRENIA TYPE						P value
	Paranoid			Non Paranoid			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
Disorder of thought	33	2.00	2.55	67	2.51	3.24	0.433
Disorder of language	33	1.82	2.20	67	2.96	2.86	0.047*
Disorder of communication	33	9.76	7.38	67	9.04	7.90	0.666

1) Disorder of language score more in non paranoid schizophrenia

Table 40

Disorder of thought , disorder of language, disorder of communication score in Acute schizophrenia among male female

Acute schizophrenia	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
DISORDER OF THOUGHT	26	2.23	3.41	24	2.92	3.23	0.470
DISORDER OF LANGUAGE	26	2.31	2.51	24	1.67	2.55	0.375
DISORDER OF LANGUAGE	26	12.77	7.92	24	5.79	6.20	0.001*

1) Disorder of communication more in male in acute schizophrenia

Table 41

Disorder of thought , disorder of language, disorder of communication score in chronic schizophrenia among male and female

Chronic schizophrenia	SEX						P value
	Male			Female			
	Count	Mean	Standard Deviation	Count	Mean	Standard Deviation	
Disorder of thought	26	1.77	2.61	24	2.50	2.84	0.348
disorder_language	26	1.69	2.57	24	4.75	2.03	0.001*
disorder_communication	26	9.27	6.89	24	9.00	8.41	0.902

1) Disorder of language score more in female in chronic schizophrenia

Table 42

Disorder of thought, disorder of language, disorder of communication with institutional stayal

Group Statistics						
	years_	N	Mean	Std. Deviation	Std. Error Mean	p value
Disorder of thought	0-10 years	26	1.4615	2.50169	.49062	0.086
	Above 20 years	24	2.7500	2.69056	.54921	
Disorder of language	0-10 years	26	2.8462	2.78126	.54545	0.194
	Above 20 years	24	3.8333	2.49637	.50957	
Disorder of communication	0-10 years	26	10.1538	7.48701	1.46832	0.393
	Above 20 years	24	8.2500	8.13073	1.65968	

1) No significant difference with duration

Table 43

Global ratings and FTD scores with institutional stayal

Group Statistics						
	Years of stayal	N	Mean	Std. Deviation	Std. Error Mean	p value
GLOBAL_RATINGS	0-10 years	26	14.4615	6.65871	1.30588	0.839
	Above 20 years	24	14.8333	6.16206	1.25783	
POSITIVE_FTD_SCORE	0-10 years	26	8.3077	5.26702	1.03295	0.786
	Above 20 years	24	8.6667	3.85235	.78636	
NEGATIVE_FTD_SCORE	0-10 years	26	4.4615	2.35339	.46154	0.945
	Above 20 years	24	4.4167	2.20507	.45011	
LOOSE ASSO_SCORE	0-10 years	26	8.0769	5.35106	1.04943	0.955
	Above 20 years	24	8.0000	4.00000	.81650	
POS_NEG_FTD	0-10 years	26	3.8462	5.90384	1.15784	0.802
	Above 20 years	24	4.2500	5.38315	1.09883	

1) No significant difference

Table 44 demographic correlation with TLC variables

		Neologism	Word approximation	Clanging	Poverty of thought	Poverty of content	Illogicality	Pressure of speech	Circumstantiality	Tangentiality	Derailment	Incoherent	Loss of goal	Perseveration	Self reference	Blocking
AGE		.076	-.173	.00	-.141	.300**	-.028*	-.251*	.117	-.060	.257**	.144	.157	.000	.053	-.018
	P	.454	.086	.97	.162	.002	.028	.012	.248	.553	.010	.154	.119	.997	.600	.863
SEX		-.008	-.137	-	.189	-.023	-.115	-.109	-.218*	-.136	-.226*	.292**	-.205*	-.231*	-.097	-.137
	P	.939	.173	.05	.060	.822	.254	.281	.030	.178	.024	.003	.041	.021	.339	.173
EDUCATION		.060	-.020	.06	-.101	-.108	.260*	.345**	.199*	.013	.003	-.145	-.027	.026	.160	-.020
	P	.551	.845	.55	.317	.287	.009	.000	.047	.902	.978	.150	.790	.796	.112	.845
PLACE		.185	-.107	.27**	-.297**	-.070	.271*	.479**	.213*	.092	-.113	-.321**	-.057	-.037	.134	-.107
	P	.065	.289	.00	.003	.490	.006	.000	.033	.363	.264	.001	.571	.714	.184	.289
S#E#STATUS		-.072	-.056	.14	-.235*	.014	.405*	.228*	.253*	.008	.093	-.085	.019	.056	.401**	-.056
	P	.476	.577	.155	.018	.891	.000	.022	.011	.939	.355	.400	.852	.582	.000	.577

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

- 1) Age has positive correlation with poverty of content, derailment ; negative correlation with pressure of speech, illogicality, tangentiality
- 2) Male has positive correlation with circumstantiality, derailment, loss of goal, perseveration; female has positive correlation incoherence
- 3) Illogicality, pressure of speech, circumstantiality positive correlation with literates,
- 4) poverty of speech positive correlation with poverty of speech; pressure of speech, incoherence, clanging, illogicality, circumstantiality positive correlation with urban

Table 45

Comparison Andreassen study 1979, 1986 and IMH study

	IMH study		Andre1979		Andre1986			P
	N	Percent	N	Percent	N	Percent		
NEOLOGISM	1	10%	1	2%	0	0%	4.793	0.09
WORD APPROXIM	2	2%	0	0%	3	6%	1.881	0.39
CLANGING	4	4%	0	0%	3	6%	2.308	0.31
POVERTY OF SPE	2	27%	1	29%	1	30%	0.575	0.75
POVERTY_OF_CO NTENT OF SPEECH	3 9	39%	1 8	40%	1 4	28%	0.827	0.66 1
ILLOGICALITY	1	17%	1	27%	1	30%	2.863	0.23
PRESSURE OF SPE	4	48%	1	27%	1	20%	7.938	0.01
CIRCUMSTANTIALI	1	16%	2	4%	8	16%	12.38	0.00
TANGENTIALITY	2	24%	1	36%	1	20%	2.841	0.24
DERAILMENT	4	47%	2	56%	3	62%	3.667	0.16
INCOHERENT	4	41%	7	16%	1	30%	3.641	0.16
LOSS OF GOAL	3	34%	2	44%	1	30%	2.033	0.36
DISTRACTIBLITY	6	6%	1	2%	3	6%	1.415	0.49
PERSEVERATION	1	1%	1	24%	1	24%	18.89	0.00
SELF REFERENCE	2	2%	6	13%	0	0%	11.79	0.00
stilled speech	0	0%	1	2%	1	2%	2.103	0.34
Echolalia	0	0%	2	4%	0	0%	6.909	0.03
Blocking	0	0%	2	4%	0	0%	6.909	0.03

- 1) Pressure of speech found more
- 2) Perseveration, self reference, echolalia found less

Table 46

IMH study 2016 and Mazumdar 1988 study

	IMH study		Mazumdar study		Chi square	P value
	No	Percentage	No	Percentage		
NEOLOGISM	10	10.00%	1	2%	2.678	0.102
WORD_APPROXIMATION	2	2.00%	1	2%	0.008	0.931
CLANGING	4	4.00%	4	9%	1.423	0.233
POVERTY_OF_SPEECH	27	27.00%	26	58%	12.676	0.000*
POVERTY_OF__CONTENT OF SPEECH	39	39.00%	20	44%	0.381	0.537
ILLOGICALITY	17	17.00%	4	9%	1.649	0.199
PRESSURE_OF_SPEECH	48	48.00%	11	24%	7.135*	0.008
CIRCUMSTANTIALITY	16	16.00%	8	18%	0.071	0.790
TANGENTIALITY	24	24.00%	25	56%	13.812*	0.001
DERAILMENT	47	47.00%	25	56%	0.909	0.340
INCOHERENT	41	41.00%	10	22%	3.698	0.054
LOSS_OF_GOAL	34	34.00%	26	58%	7.234	0.007*
DISTRACTIBLITY	6	6.00%	11	24%	10.201	0.001*
PERSEVERATION	1	1.00%	26	58%	66.022	0.000*
SELF_REFERENCE	2	2.00%	24	53%	55.572	0.000*
STILTED SPEECH	0	0.00%	3	7%	2.083	0.149
Echolalia	0	0.00%	3	7%	2.083	0.149
Blocking	0	0.00%	3	7%	2.083	0.149

- 1) Poverty of speech, tangentiality, loss of goal, stilted speech, perseveration, self reference are less in IMH study
- 2) Pressure of speech more in IMH study

6. DISCUSSION

Our aims of the study are

1) to examine type, severity, prevalence of the thought, language, communication disorder in schizophrenia.

2) to examine difference between acute episode of schizophrenia and chronic institutionalized schizophrenia.

3) to examine correlation between thought, language, communication disorder with socio demographic variable.

In our study, 100 patients are taken. (acute Schizophrenia 50, chronic institutionalized schizophrenia 50).

1. socio demography and clinical Distribution:

1. Male, female are 52%, 48% respectively.
2. Paranoid, Non paranoid are 33%, 67% respectively.
3. 60% of the patients are studied below 8th Standard and 40% are above 8th Standard.
4. 64% of the patients are from rural and 36% are from Urban.

5. 85% of Patients are belong to Low Social economic Status. 15% of patients are belong to above Low socioeconomic status.

2. Analysing 18 TLC variables frequency in schizophrenia shows:

a) >30% of frequency are: pressure of speech, derailment, incoherence, poverty of content, loss of goal

b) 10-30% of frequency are:Poverty of speech, tangentiality, illogicality, circumstantiality.

c) < 10% of frequency are:distractibility, neologism, clanging, word approximation, perseveration, self reference .
stitted speech, echolalia, blocking not at all present.

3.Compared with Nancy Andreason Study (1979, 1986), the pressure of speech is found more in our study (48% in our study, 24% in Andreason study) and perseveration, self reference, echolalia are found less.

4. Compared with Mazumdar Study (1988) the pressure of speech is more in our study (48% in our study, 24% in Mazumdar study). But stilted speech, perseveration, self reference are found less.

Poverty of speech is more in mazumdar study. He explained this as due to guarding nature of paranoid patients. But this is not experienced in our study.

5. Analysing TLC items frequency in schizophrenia among male and female shows:

- a) circumstantiality, derailment, loss of goal, clanging are found more in male;
- b) Incoherence are more in female.

Male and female difference in thought disorder is not stated before. but we find significant differences.

6. Analysing TLC items frequency, comparing acute and chronic schizophrenia:

- a) pressure of speech, clanging found more in acute schizophrenia.
- b) Poverty of content, incoherence found more in chronic schizophrenia. It can be explained as evasiveness in thought in chronic insitutionalisation.

7. Analysing TLC items frequency in acute schizophrenia, comparing male and female shows:

a) Tangentiality, derailment, loss of goal, clanging are more in male.

b) poverty of speech, incoherence are more in female.

8. Analysing TLC items frequency in chronic Schizophrenia, comparing male and female shows:

Poverty of speech, incoherence are more in female.

These gender differences are not stated previously but we find they are significant.

9. Comparing Paranoid and Non-paranoid Schizophrenia shows:

a) Circumstantiality, illogicality, word approximation, clanging more in paranoid schizophrenia.

b) Derailment, poverty of speech, incoherence more in non-paranoid schizophrenia.

Poverty of speech, which is more in paranoid in mazumdar study, is not seen more in our study. Guarding nature which influenced for more poverty of speech in mazumdar study is not present in our study.

10. In paranoid schizophrenia, comparing male and female shows:

Clanging, derailment more in male.

11. In Non paranoid schizophrenia, comparing male and female:

a) circumstantiality, illogicality, neologism are more in male.

b) Poverty of speech, incoherence more in female.

12. Comparing TLC items frequency among Low Literate and High Literate shows:

a) In schizophrenia (both acute and chronic) pressure of speech, circumstantiality more in high literate group.

b) In acute schizophrenia, Loss of goal found more in low literate group.

c) In chronic schizophrenia, pressure of speech, circumstantiality found more in high literate group.

13) Comparing TLC items frequency among Low Literate and High Literate:

a) In Paranoid Schizophrenia,

word approximation, perseveration more in Low literate group. circumstantiality found more in high literate group.

b) In Non paranoid Schizophrenia,

blocking is found more in Low Literate group.

Perseveration, blocking is found more in low literate group. This was also stated in mazumdar study. It shows influence of literacy and language in TLC disorder.

14. Analysing TLC items frequency, among urban and rural:

a) In schizophrenia (acute and chronic) ,

pressure of speech, illogicality, clanging more in urban group.

Poverty of content, incoherence more in rural group.

15. Analysing TLC items frequency in acute schizophrenia , comparing urban and rural shows:

a) pressure of speech is more in urban group,

b) poverty of speech and loss of goal is more in rural group.

In chronic schizophrenia comparing urban and rural shows:

neologism, illogicality, circumstantiality more in urban group.

Urban and rural differences in expression of TLC disorder is noted. Poverty of speech, poverty of content, incoherence are more in rural group. It was also stated in previous mazumdar study.

16. Analysing paranoid and non-paranoid schizophrenia association with place and education shows:

a) Paranoid schizophrenia found more in urban group , high literate group.

b) Non paranoid schizophrenia found more in rural group, low literate group.

This finding of more paranoid schizophrenia cases in educated and urban group shows influence of literacy, language. It was already stated by varma et al. Also noted by mazumdar study. We also find this significance in our study.

17. Analysing TLC items frequency and its manifesting form in interview shows that,

a) In acute schizophrenia
poverty of speech when it is present, it found in severe and extreme form.

Circumstantiality, tangentiality, illogicality, loss of goal, preservation, word approximation, neologism, blocking when they are present, they are found in mild or moderate form.

b) In chronic schizophrenia,

Poverty of speech, poverty of content, tangentiality, circumstantiality, incoherence when they are present, they are found in severe, extreme form.

Illogicality, self reference, blocking, word approximation when they are present, they are found in mild, moderate form.

18. Analyzing FTD score in acute and chronic schizophrenia shows:

negative FTD score more in chronic schizophrenia .

19. Analyzing FTD Score in paranoid and non paranoid schizophrenia shows:

negative formal thought disorder score more in non paranoid schizophrenia.

Positive negative FTD dichotomy score more in paranoid schizophrenia. It shows more positive FTD and less negative FTD score combination nature of paranoid schizophrenia.

20. In acute schizophrenia, FTD score comparing male and female shows:

male has more positive FTD score, loosening of association and more positive and negative dichotomy score.

21. In chronic schizophrenia FTD score comparing male and female shows:

negative FTD score more in female.

22. In paranoid schizophrenia, FTD score comparing male, female shows:

a) positive FTD score more in male

b) loosening of association more in female.

23. In non paranoid schizophrenia, FTD score comparing male and female shows:

negative FTD score more in female.

This gender difference significance is not stated previously. But we find significant differences in manifestation of TLC items among male and female.

24. Analysing disorder of thought , disorder of language, disorder of communication scores shows:

a) comparing in acute and chronic schizophrenia:

Disorder of language score more in chronic schizophrenia.

b) Comparing in paranoid and non paranoid schizophrenia shows:

disorder of language more in non paranoid.

In disorder of language, incoherence is the factor that influence this findings.

c)In acute schizophrenia, comparison in male and female shows:

male has more disorder of communication.

d)In chronic schizophrenia, comparison in male and female shows:

disorder of language more in female.

25. Association of long institutional stayal and TLC items serverity,

comparing less than 10 years of stayal and more than 10 years of stayal, there is no significant changes in disorder of thought, language, communication scores.

There is no significant changes in TLC global rating, positive FTD score, negative FTD score, loosening of association score, positive and negative dichotomy score.

Long institutionalization, and chronic medication in these patients show no significant differences in formal thought disorder score. This kind of finding also stated by spohn et. Al (1977)

26. Analyzing Demographic correlation with TLC item shows:

a) Age

poverty of content, derailment increased as the age increased.

Pressure of speech, illogicality, tangentiality decreased as the age increased.

b) Gender

Circumstantiality, derailment, loss of goal, perservation are more in male.

Incoherence is more in female.

c) Education

In education, pressure of speech, circumstantiality are more in High Literate.

d) Place

Poverty of speech more in rural.

Pressure of speech, incoherence, clanging, illogicality more in urban.

e) Socio economic status

Poverty of speech more in Low social economic status.

Pressure speech, circumstantiality, self reference more in high socio-economic status.

These demographic correlation with thought language communication disorder is not stated previously. But we find significant correlation with them.

7. CONCLUSION

1) Analysing 18 TLC variables frequency in schizophrenia shows:

Commonest prevalence are pressure of speech, derailment, incoherence, poverty of content, loss of goal (>30%).

Intermediate prevalence are Poverty of speech, tangentiality, illogicality, circumstantiality (10-30%).

Least prevalence are distractibility, neologism, clanging, word approximation, perseveration, self reference .

Stilted speech, echolalia, blocking not at all present.

2) There is significant difference found when comparing acute schizophrenia and chronic institutionalized schizophrenia.

a) pressure of speech, clanging found more in acute schizophrenia.

b) Poverty of content, incoherence found more in chronic schizophrenia.

3) Analyzing FTD score and comparing acute schizophrenia and chronic schizophrenia shows:

Negative FTD score found more in chronic schizophrenia.

4) Comparing Paranoid and Non-paranoid Schizophrenia shows:

a) Circumstantiality, illogicality, word approximation, clanging more in paranoid schizophrenia.

b) Derailment, poverty of speech, incoherence more in non-paranoid schizophrenia.

5) Analyzing FTD score and comparing paranoid schizophrenia and non-paranoid schizophrenia shows:

Negative FTD score found more in non-paranoid schizophrenia.

6) In acute schizophrenia, comparing FTD score in male and female shows:

male has more positive FTD score, loosening of association and more positive and negative dichotomy score.

7) In chronic schizophrenia comparing FTD score in male and female shows:

negative FTD score more in female.

8) Association of long institutional stayal and TLC items serverity,

Comparing less than 10 years of stayal and more than 10 years of stayal, there is no significant changes in disorder of thought, language, communication scores, TLC global rating, positive FTD score, negative FTD score, loosening of association score, positive and negative dichotomy score.

Long institutionalization, and chronic medication in these patients show no significant differences in formal thought disorder score.

9) Analyzing Demographic correlation with TLC item shows:

1) Age

a) poverty of content, derailment increased as the age increased.

b) Pressure of speech, illogicality, tangentiality decreased as the age increased.

2) Gender

a) Circumstantiality, derailment, loss of goal, perservation are more in male.

b) Incoherence is more in female.

3) Education

a) In education, pressure of speech, circumstantiality are more in High Literate.

4) Place

Poverty of speech more in rural.

pressure of speech, incoherence, clanging, illogicality more in urban.

5) Socio economic status

Poverty of speech more in Low social economic status. pressure speech, circumstantiality, self reference more in high socioeconomic status.

- a) There is significant differences in type, severity, prevalence of thought, language and communication disorder variables are found in our study.
- b) There is significant difference in clinical expression between acute episode of schizophrenia and chronic institutionalised schizophrenia are also found.
- c) There is also significant correlation of thought language and communication disorder with socio demographic variable such as age, sex, place, education, socio economic status.

These significances are not stated in previous studies but we found. The cultural and language influence in thought language communication disorder of schizophrenia could be responsible for this significances. It

has to be studied more detail.

8. LIMITATIONS

- 1) This study is a single centre study. The results can not be generalized to all places.
- 2) This study is done in tertiary care hospital where low socio economic and educational status patients are more. The results can not be generalised to entire community.
- 3) This study is a cross sectional study. A longitudinal study will provide more details.

9. FUTURE DIRECTIONS

- 1) This study can be done in multi centric and community based level for more detailed results of thought, language and communication abnormalities in schizophrenia.
- 2) Longitudinal study with further follow up will provide more details.
- 3) Study in unmedicated schizophrenic patients will provide more details about nature of thought language communication disorders.
- 4) Study in subtype of schizophrenia will provide more details about the thought, language and communication abnormalities in individual subtype of schizophrenia.
- 5) This study has to be done with the involvement of linguistics for more detailed evaluation of language abnormalities in schizophrenia.

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disturbances as language pathology across positive symptoms, frontier psychology
2015 July 16

The Mini Mental State Examination (MMSE)

By: Lenore Kurlowicz, PhD, RN, CS and Meredith Wallace, PhD, RN, MSN

WHY: Cognitive impairment is no longer considered a normal and inevitable change of aging. Although older adults are at higher risk than the rest of the population, changes in cognitive function often call for prompt and aggressive action. In older patients, cognitive functioning is especially likely to decline during illness or injury. The nurses' assessment of an older adult's cognitive status is instrumental in identifying early changes in physiological status, ability to learn, and evaluating responses to treatment.

BEST TOOL: The Mini Mental State Examination (MMSE) is a tool that can be used to systematically and thoroughly assess mental status. It is an 11-question measure that tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language. The maximum score is 30. A score of 23 or lower is indicative of cognitive impairment. The MMSE takes only 5-10 minutes to administer and is therefore practical to use repeatedly and routinely.

TARGET POPULATION: The MMSE is effective as a screening tool for cognitive impairment with older, community dwelling, hospitalized and institutionalized adults. Assessment of an older adult's cognitive function is best achieved when it is done routinely, systematically and thoroughly.

VALIDITY/RELIABILITY: Since its creation in 1975, the MMSE has been validated and extensively used in both clinical practice and research.

STRENGTHS AND LIMITATIONS: The MMSE is effective as a screening instrument to separate patients with cognitive impairment from those without it. In addition, when used repeatedly the instrument is able to measure changes in cognitive status that may benefit from intervention. However, the tool is not able to diagnose the cause for changes in cognitive function and should not replace a complete clinical assessment of mental status. In addition, the instrument relies heavily on verbal response and reading and writing. Therefore, patients that are hearing and visually impaired, intubated, have low English literacy, or those with other communication disorders may perform poorly even when cognitively intact.

MORE ON THE TOPIC:

Folstein, M., Folstein, S.E., McHugh, P.R. (1975). "Mini-Mental State" a Practical Method for Grading the Cognitive State of Patients for the Clinician. *Journal of Psychiatric Research*, 12(3); 189-198.

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The Mini-Mental State Exam

Patient _____ Examiner _____ Date _____

Maximum Score

5 ()

Orientation

What is the (year) (season) (date) (day) (month)?

5 ()

Where are we (state) (country) (town) (hospital) (floor)?

Registration

3 ()

Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he/she learns all 3. Count trials and record.
Trials _____

Attention and Calculation

5 ()

Serial 7's. 1 point for each correct answer. Stop after 5 answers. Alternatively spell "world" backward.

Recall

3 ()

Ask for the 3 objects repeated above. Give 1 point for each correct answer.

Language

2 ()

Name a pencil and watch.

1 ()

Repeat the following "No ifs, ands, or buts"

3 ()

Follow a 3-stage command:
"Take a paper in your hand, fold it in half, and put it on the floor."

1 ()

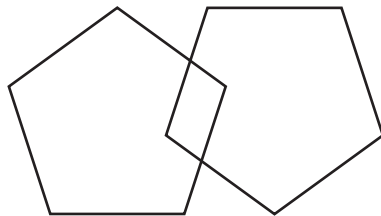
Read and obey the following: CLOSE YOUR EYES

1 ()

Write a sentence.

1 ()

Copy the design shown.



Total Score

ASSESS level of consciousness along a continuum _____

Alert Drowsy Stupor Coma

"MINI-MENTAL STATE." A PRACTICAL METHOD FOR GRADING THE COGNITIVE STATE OF PATIENTS FOR THE CLINICIAN. *Journal of Psychiatric Research*, 12(3): 189-198, 1975. Used by permission.

Psychiatric University Hospital Zurich, Division of Clinical Psychiatry

POSITIVE AND NEGATIVE SYNDROME SCALE

P A N S S

S.R. Kay, A. Fiszbein, L.A. Opler

STUDY	[_ _ _ _]	1-4
GROUP	[_ _]	5-6
PATIENT	[_ _ _]	7-9
RATING DAY	[_ _ _]	10-12
CARD NUMBER	[_ _]	13-14
Sex (1=male, 2=female)	[_]	15
Birthday (dd.mm.yy)	[_ _ : _ _ : _ _]	16-21
Date of hospitalization (dd.mm.yy)	[_ _ : _ _ : _ _]	22-27
First diagnosis	[_ _ _ . _ _]	28-32
Second diagnosis	[_ _ _ . _ _]	33-37
Diagnostic system (1=ICD9, 2=ICD10, 3=DSM3-R, 4=DSM4)	[_]	38
Age at onset	[_ _]	39-40
Course (1=first manifestation, 2=intermittent, 3=proгредиant, 4=chronic)	[_]	41
Duration of Current Episode Prior to Hospitalization (days)	[_ _ _]	42-44
Medication Prior to Hospitalization (0=none, 1=antidepr., 2=neuroleptics, 3=other)	[_]	45
Current Medication (cf. list of codes)	[_ _ _]	46-48
Educational level (1=remedial, 2=junior high, 3=high, 4=college)	[_]	49
DATE (dd.mm.yy)	[_ _ : _ _ : _ _]	50-55
INTERVIEWER	[_ _ _]	56-58
HOSPITAL	[_ _]	59-60
PATIENT ID (the hospital's internal PID)	[_ _ _ _ _ _ _ _ _ _]	61-72

0=Absent 1=Minimal 2=Mild 3=Moderate 4=Moderate severe 5=Severe 6=Extreme
--

1-12 dupl

CARD NUMBER

[_ _] 13-14

POSITIVE SCALE (P)

- P1 Delusions** [_] 15
Beliefs which are unfounded, unrealistic, and idiosyncratic. Basis for rating: Thought content expressed in the interview and its influence on social relations and behavior.
- P2 Conceptual disorganization** [_] 16
Disorganized process of thinking characterized by disruption of goal-directed sequencing, e.g., circumstantiality, tangentiality, loose associations, non sequiturs, gross illogicality, or thought block. Basis for rating: Cognitive-verbal processes observed during the course of interview.
- P3 Hallucinatory behavior** [_] 17
Verbal report or behavior indicating perceptions which are not generated by external stimuli. These may occur in the auditory, visual, olfactory, or somatic realms. Basis for rating: Verbal report and physical manifestations during the course of interview as well as reports of behavior by primary care workers or family.
- P4 Excitement** [_] 18
Hyperactivity as reflected in accelerated motor behavior, heightened responsiveness to stimuli, hypervigilance, or excessive mood lability. Basis for rating: Behavioral manifestations during the course of interview as well as reports of behavior by primary care workers or family.
- P5 Grandiosity** [_] 19
Exaggerated self-opinion and unrealistic convictions of superiority, including delusions of extraordinary abilities, wealth, knowledge, fame, power, and moral righteousness. Basis for rating: Thought content expressed in the interview and its influence on behavior.
- P6 Suspiciousness/persecution** [_] 20
Unrealistic and exaggerated ideas of persecution, as reflected in guardedness, a distrustful attitude, suspicious hypervigilance, or frank delusions that others mean one harm. Basis for rating: Thought content expressed in the interview and its influence on behavior.
- P7 Hostility** [_] 21
Verbal and nonverbal expressions of anger and resentment, including sarcasm, passive-aggressive behavior, verbal abuse, and assaultiveness. Basis for rating: Interpersonal behavior observed during the interview and reports by primary care workers or family.

NEGATIVE SCALE (N)

- N1 Blunted affect** [_] 22
Diminished emotional responsiveness as characterized by a reduction in facial expression, modulation of feelings, and communicative gestures. Basis for rating: Observation of physical manifestations of affective tone and emotional responsiveness during the course of interview.
- N2 Emotional withdrawal** [_] 23
Lack of interest in, involvement with, and affective commitment to life's events. Basis for rating: Reports of functioning from primary care workers or family and observation of interpersonal behavior during the course of interview.
- N3 Poor rapport** [_] 24
Lack of interpersonal empathy, openness in conversation, and sense of closeness, interest, or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication. Basis for rating: Interpersonal behavior during the course of interview.

0=Absent 1=Minimal 2=Mild 3=Moderate 4=Moderate severe 5=Severe 6=Extreme
--

- N4 Passive/apathetic social withdrawal** [_] 25
 Diminished interest and initiative in social interactions due to passivity, apathy, anergy, or avolition. This leads to reduced interpersonal involvements and neglect of daily activities.
- N5 Difficulty in abstract thinking** [_] 26
 Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalizations, and proceeding beyond concrete or egocentric thinking in problem-solving tasks. Basis for rating: Responses to questions on similarities and proverb interpretation, and use of concrete vs. abstract mode during the course of interview.
- N6 Lack of spontaneity and flow of conversation** [_] 27
 Reduction in the normal flow of communication associated with apathy, avolition, defensiveness, or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal-interactive process. Basis for rating: Cognitive-verbal processes observed during the course of interview.
- N7 Stereotyped thinking** [_] 28
 Decreased fluidity, spontaneity, and flexibility of thinking, as evidenced in rigid, repetitious, or barren thought content. Basis for rating: Cognitive-verbal processes during the course of interview.

GENERAL PSYCHOPATHOLOGY SCALE (G)

- G1 Somatic concern** [_] 29
 Physical complaints or beliefs about bodily illness or malfunctions. This may range from a vague sense of ill being to clear-cut delusions of catastrophic physical disease. Basis for rating: Thought content expressed in the interview.
- G2 Anxiety** [_] 30
 Subjective experience of nervousness, worry, apprehension, or restlessness, ranging from excessive concern about the present or future to feelings of panic. Basis for rating: Verbal report during the course of interview and corresponding physical manifestations.
- G3 Guilt feelings** [_] 31
 Sense of remorse or self-blame for real or imagined misdeeds in the past. Basis for rating: Verbal report of guilt feelings during the course of interview and the influence on attitudes and thoughts.
- G4 Tension** [_] 32
 Overt physical manifestations of fear, anxiety, and agitation, such as stiffness, tremor, profuse sweating, and restlessness. Basis for rating: Verbal report attesting to anxiety and, thereupon, the severity of physical manifestations of tension observed during the interview.
- G5 Mannerisms and posturing** [_] 33
 Unnatural movements or posture as characterized by an awkward, stilted, disorganized, or bizarre appearance. Basis for rating: Observation of physical manifestations during the course of interview as well as reports from primary care workers or family.
- G6 Depression** [_] 34
 Feelings of sadness, discouragement, helplessness, and pessimism. Basis for rating: Verbal report of depressed mood during the course of interview and its observed influence on attitude and behavior.
- G7 Motor retardation** [_] 35
 Reduction in motor activity as reflected in slowing or lessening of movements and speech, diminished responsiveness to stimuli, and reduced body tone. Basis for rating: manifestations during the course of interview as well as reports by primary care workers or family.

- G8 Uncooperativeness** [_] 36
Active refusal to comply with the will of significant others, including the interviewer, hospital staff, or family, which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility, or belligerence. Basis for rating: Interpersonal behavior observed during the course of interview as well as reports by primary care workers or family.
- G9 Unusual thought content** [_] 37
Thinking characterized by strange, fantastic, or bizarre ideas, ranging from those which are remote or atypical to those which are distorted, illogical, and patently absurd. Basis for rating: Thought content expressed during the course of interview.
- G10 Disorientation** [_] 38
Lack of awareness of one's relationship to the milieu, including persons, place, and time, which may be due to confusion or withdrawal. Basis for rating: Responses to interview questions on orientation.
- G11 Poor attention** [_] 39
Failure in focused alertness manifested by poor concentration, distractibility from internal and external stimuli, and difficulty in harnessing, sustaining, or shifting focus to new stimuli. Basis for rating: Manifestations during the course of interview.
- G12 Lack of judgment and insight** [_] 40
Impaired awareness or understanding of one's own psychiatric condition and life situation. This is evidenced by failure to recognize past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalization or treatment, decisions characterized by poor anticipation of consequences, and unrealistic short-term and long-range planning. Basis for rating: Thought content expressed during the interview.
- G13 Disturbance of volition** [_] 41
Disturbance in the willful initiation, sustenance, and control of one's thoughts, behavior, movements, and speech. Basis for rating: thought content and behavior manifested in the course of interview.
- G14 Poor impulse control** [_] 42
Disordered regulation and control of action on inner urges, resulting in sudden, unmodulated, arbitrary, or misdirected discharge of tension and emotions without concern about consequences. Basis for rating: Behavior during the course of interview and reported by primary care workers or family.
- G15 Preoccupation** [_] 43
Absorption with internally generated thoughts and feelings and with autistic experiences to the detriment of reality orientation and adaptive behavior. Basis for rating: Interpersonal behavior observed during the course of interview.
- G16 Active social avoidance** [_] 44
Diminished social involvement associated with unwarranted fear, hostility, or distrust. Basis for rating: Reports of social functioning by primary care workers or family.

FORMALE DENKSTÖRUNGEN

- Z1 Verschwommenes Denken** [_] 45
Die Begriffe sind unscharf und vage, die Äusserungen sind in grösseren Zusammenhängen nicht verständlich. Ein vager thematischer Zusammenhang bleibt erkennbar, Themenwechsel vollziehen sich durch allmähliches Entgleiten des bisherigen Themas. Typisch finden sich auch Vorbeireden, Kontaminationen, Verschiebungen und Substitutionen sowie Neologismen.
- Z2 Sprunghaftes Denken** [_] 46
Das Denken ist assoziativ gelockert, es treten zahlreiche, den Sinnzusammenhang durchbrechende Gedankensprünge auf, so dass der Eindruck einer bei jedem Einfall wechselnden Denkrichtung entsteht.

interview, or so frequently that the interview is incomprehensible, and aphasia testing positive).

Global Rating of TLC Disorder (Excluding Semantic and Phonemic Paraphasias)

The global assessment of the overall severity of the TLC disorder may be approached in two ways. It may

literally be rated globally, using the rating scale provided below. This global rating should reflect the recognition that some TLC disorders are more pathological than others. Circumstantiality or stilted speech are not as likely to suggest severe psychopathology as are incoherence or derailment.

An alternative method is to use the

illustrated listing to summate the scores on each of the TLC ratings. Using this method, the rating for each TLC variable should be multiplied by 2 in the case of the more pathological variables and by 1 in the case of the less pathological; summing of the resulting scores will give a more quantitative measure of the severity of the TLC disorder.

Listing to summate scores

More pathological	Less pathological
Poverty of speech	Circumstantiality
Poverty of content of speech	Loss of goal
Pressure of speech	Perseveration
Distractible speech	Blocking
Derailment	Echolalia
Tangentiality	Stilted speech
Incoherence	Self-reference
Illogicality	
Clanging	
Neologisms	
Word approximations	

0 No TLC disorder. Occasional instances of the less pathological forms and no more than one instance of the more pathological (which is felt in context to be clinically insignificant).

1 Mild TLC disorder. Occasional instances of TLC disorder which are felt in context to be mild but clinically significant.

2 Moderate TLC disorder. Significant and unquestionable impaired verbal output which leads to a moderate disturbance in communication at least from time to time.

3 Severe TLC disorder. Disorder significant enough to impair communication for a substantial part of the interview; many instances of the more pathological manifestations of TLC.

4 Extreme TLC disorder. TLC disorder so severe that communication is difficult or impossible most of the time.

TLC Score Sheet

1. Poverty of speech	0	1	2	3	4
2. Poverty of content of speech	0	1	2	3	4
3. Pressure of speech	0	1	2	3	4
4. Distractible speech	0	1	2	3	4
5. Tangentiality	0	1	2	3	4
6. Derailment	0	1	2	3	4
7. Incoherence	0	1	2	3	4
8. Illogicality	0	1	2	3	4
9. Clanging	0	1	2	3	4
10. Neologisms	0	1	2	3	
11. Word approximations	0	1	2	3	
12. Circumstantiality	0	1	2	3	
13. Loss of goal	0	1	2	3	
14. Perseveration	0	1	2	3	
15. Echolalia	0	1	2	3	
16. Blocking	0	1	2	3	
17. Stilted speech	0	1	2	3	
18. Self-reference	0	1	2	3	
Global rating	0	1	2	3	4

Appendix. Kappa values of definitions of thought, language, and communication disorders in psychiatric patients ($n = 113$)

	Full scale weighted Kappa	Present/absent unweighted Kappa
Poverty of speech	.81	.75
Poverty of content of speech	.77	.62
Pressure of speech	.89	.82
Distractible speech	.78	.78
Tangentiality	.58	.49
Derailment	.83	.71
Incoherence	.88	.91
Illogicality	.80	.69
Clanging	.58	.53
Neologisms	.39	.49
Word approximations	-.02	-.02
Circumstantiality	.74	.80
Loss of goal	.70	.65
Perseveration	.74	.46
Echolalia	.59	.42
Blocking	.79	.71
Stilted speech	.70	.32
Self-reference	.50	.36

Information to Participants

Title : A STUDY OF THOUGHT, LANGUAGE, COMMUNICATION DISORDER IN SCHIZOPHRENIA

Principal Investigator : Dr. M. MATHIVANAN

Name of Participant :

Site : Institute Of Mental Health , Chennai

You are invited to take part in this research. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

What is the purpose of research:

Schizophrenia is a formal thought disorder. It shows aberrant language and cognitive behavior. Its aberrant behavior of thought, language, communication disorder are not present in uniform manner in all patients. It has 18 subtypes and varied presentation in Schizophrenics. In this study, we assess both qualitative and quantitative thought, language, communication disorder in Schizophrenia. We have obtained permission from the Institutional Ethics Committee.

We have obtained permission from the Institutional Ethics Committee.

The study design and procedures :

(18 – 50 Years aged 100 schizizophrenia patients were taken. Following scales given one setting)

- 1) Semi structured proforma for socio-demographic details.
- 2) Positive and negative syndrome scale
- 3) Nancy Andreasen thought, language, communication scale

Confidentiality of the information obtained from you

You have the right to confidentiality regarding the privacy of your medical information (personal details, results of physical examinations, investigations, and your medical history). By signing this document, you will be allowing the research team investigators, other study personnel, Institutional Ethics Committee and any person or agency required by law like the Drug Controller General of India to view your data, if required.

The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

How will your decision to not participate in the study affect you?

Your decision not to participate in this research study will not affect your medical care or your relationship with the investigator or the institution. You will be taken care of and you will not lose any benefits to which you are entitled.

Can you decide to stop participating in the study once you start?

The participation in this research is purely voluntary and you have the right to withdraw from this study at any time during the course of the study without giving any reasons. However, it is advisable that you talk to the research team prior to discontinuing from the study.

Signature of investigator

Signature of Participant

Date :

Date :

INFORMED CONSENT FORM

(This is only a guideline – Relevant changes to be made as per the study requirements)

Title of the study : “ A study of thought, language, communication disorder in Schizophrenia “

Name of the Participant: _____

Name of the Principal (Co – Investigator) : Dr. M.MATHIVANAN

Name of the Institution : Institute of Mental Health

Name and address of the sponsor / agencies) (if any):___ No _____

Documentation of the informed consent

I _____ have read the information in this form (or it has been read to me). I was free to ask any questions and they have been answered. I am over 18 years of age and exercising my free power of choice, hereby give my consent to be included as participant in

A study of thought, language, communication disorder in Schizophrenia

- 1) I have read and understood this consent form and the information provided to me.
- 2) I have had the consent document explained to me.
- 3) I have been explained about the nature of the study.
- 4) I have been explained about my rights and responsibilities by the investigator.
- 5) I have been informed the investigator of all the treatments I am taking or have taken in the past _____ months including any native (alternative) treatment.
- 6) I have been advised about the risks associated with my participation in this study.*
- 7) I have not participated in any research study within the past _____ Months (s)*
- 8) I have not donated blood within the past _____ months ____ Add if the study involves extensive blood sampling. *
- 9) I am aware of the fact that I can opt out of the study at any time without having to give any reason and this will not affect my future treatment in this hospital. *
- 10) I am also aware that the investigator may terminate my participation in the study at any time, for any reason, without my consent. *
- 11) I hereby give permission to the investigators to release the information obtained from me as result of participation in the study to the sponsors, regulatory authorities, Govt. agencies, and IEC, I understand that they are publicly presented.
- 12) I have understand that my identity will be kept confidential if my data are publicly presented/
- 13) I have had my questions answered to my satisfaction.
- 14) I have decided to be in the research study.

I am aware that if I have any question during this study, I should contact the investigator, By signing this consent form I attest that the information given in this document has been clearly explained to me and understood by me, I will be given a copy of this consent document.

For adult participants:

Name and signature / thumb impression of the participant (or legal representative if participant is incompetent)

Name _____ Signature _____ Date _____

Name and Signature of impartial witness (required for illiterate patients):

Name _____ Signature _____ Date _____

Address and contact number of the impartial witness:

Name and Signature of the investigator or his representative obtaining consent:

Name _____ Signature _____ Date _____

Name and Signature of the investigator or his representative obtaining consent:

Name _____ Signature _____ Date _____

Muharrir xggj y;got k;

j i ygg[/? kdrri j t[nehary;rpej i d. bkhHp.
bj hl hg[j pwd;nfhshW ? Xh;Mat[

Mat;hshpd;bgah; kU/k/kj pthz d;

g' F bgWk;, I k; muR kdey fhggfk;
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ehd; , ej gotj i j KGtJ khf goj nj d/

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ehd; 18 taj pWF nkwgl l th; vdgi j a[; , ej Mathsh;

nkwbfhz Sk;, ej Mat;pWF kdrri j t[nehary;rpej i d. bkhHp.

bj hl hg[j pwd; nfhshW xU Mat[? , j py; vdi d , i z j ; f;

bfhss KG rkkj k;bj hpt pf;fpnwd/

1) ehd; , ej xggj y; gotj j py; css mi dj i j a[; goj ;

mwpe;J bfhz nl d/

2) xggj y;got k;KGtJ khf tpt hpf fgg l j J /

3) , ej Mat;pd; j di ki a gwwpa tptu' fs; mwpe;J f;

bfhz nl d/

4) vdDi l a chipi kfi sa[;kwWk;bgHwggf;s;vdđ vdgi j a[;

Mat;hsh;Kyk;mwpe;J bfhz nl d/

5) ehd; Kdg[vLj ; f; bfhz l vyyh rpfpri r Ki wfi sa[;

Mat;hsUfF bj hpaggLj j pndd/

- 6) , ej Mat;pd; ehd; g' F bgWtj pd; Kyk; VwgLk;
tpi stfi sa[k; ehd; mwpe;J bfhz nl d/
- 7) ehd; MathsUfF vd; KG xj ; i Hgi ga[k; mspgngd/ nkYk;
vddF Vnj Dk; t; j j pahrkhd mwpFwpfs; bj dgl l hy; mi j
cl nd MathsUfF bj hptpgngd/
- 8) ehd; , ej Kdg[fl ej //////////////// khj ' fspy; vej t; j
Mat fspYk; g' F bgwt pyi y/
- 9) ehd; vej neuj j pYk; , ej Mat; pypUe;J btspnawyhk; vdWk;
, j dhy; gpwfhyj j py; vdfF kUj ; tki dapy; bfhLffggLk;
rpfpri rapy; vej ghj pgg[k; Vwgl hJ vdgi j mwpe;J sns d/
- 10) nkYk; vej neuj j pYk; vej fhuz j j pwfhtJ Mathsh;
, ej Mat;pd; g' fhsuha; , Uggj pypUe;J vdi d ePfyhk;
vdgi j a[k; mwpe;J sns d/
- 11) vddpl k; , ej Mat;pd; Kyk; bgwggll j ftyfspd;
Mathsh; cah; mj pfhhpapl k; kwWk; bewpKi w FGt py;
bj hpaggLj j rkkj pffpnwd/ mthfs; vdDi la KG
j ftyfi s Muha neuyhk; vdW mwpe;J bfhssyhk/
- 12) vdDi l j tfyfs; btspapLk; nghJ vdDi la
mi lahs' fs; ufrpakhf ghJ fhffggLk; vdW mwpe;J
bfhz nl d/

13) ehd; j hdhfnt Kd; teJ , ej Mat;py; vdi d xU
cWggpduhf , i z j ; f;bfhs;f;pnwd/

, ej Mat;py; vdfF nfstp vGj j hy; mi j
Mathshpl k; nfi L mwpe;J bfhs; ntz Lk; vdgi j a[; bj hpe;J
bfhz ni d/ , ej gotj j py; i fbaGj ; , Ltj d; Kyk; , ej
Mat;pd; vyyh fUj ; f fi sa[; ehd; goj ; mwpe;J bfhz ni d;
vdgi j bj hpt; j ; f;bfhs;f;pnwd/ , ej gotj j pd; efi ya[; ehd;
bgwWf;bfhz ni d/

g' F bgWgthpd;kwWk;i fbahggk;myyJ i fnui f

bgah; _____ i fbahggk; _____nj j p _____

eLepi y rhl rpahshpd;bgah;kwWk;i fbahggk;

bgah; _____ i fbahggk; _____nj j p _____

Kft hp _____bj hi yngrp vz / _____

Mat;hshpd;bgah;kwWk; i fbahggk;

bgah; _____ i fbahggk; _____nj j p _____

Muharrir j f t y; j h s;

j i ygg[/? kdr rpi j t[nehapy;rpej i d. bkhHp.

bj hl hg[j p w d; n f h s h W ? X h; M a t [

Ma;t hshp d; bgah; kU/k/kj p t h z d;

g' F b f h s g t h p d; bgah;

g' F b g W k; , l k; muR k d e y f h g g f k;
b r d j d k U j ; j t
f y; Y } h p. b r d j d /

Muharrir p d; n e h f f k; /?

kdr rpi j t[n e h a; v d g J r p e j i d n f h s h W
n e h a h F k / , j p y; b k h H p j p w D k; m w p t [j p w D k; k W g h L m i l f p d w d /
, e j r p e j i d b k h H p b j h l h g p a y; e l j i j a h d J m i d j ;
kdr rpi j t[n e h a h f s p l K k; , U g g j p y i y / , j p y; 18 t p j c s g p h p t [
b t s p g h L f s; b t t n t W m s t p y; c s s d / , e j M a t p y; kdr rpi j t [
n e h a p y; r p e j i d . b k h H p . b j h l h g [j p w d; n f h s h W g h j p f f g g L t i j
b g h U z j k k w W k; j u m s t p y; M a f p n w h k /

Mat [f l] i kgg[kwWk;brayKi w l?

18 K j y; 50 taJ ti uaßs 100 kdrppi j t [nehahspfs;

Mat [vLj ; f ;bfhssggi L fRf;fhQqk;mstEfs;mwppaggLk/

1) kffsfspd;rKf thHt;pay;gj pt [

2) rpej i d bkhHp kwWk; bj hl hgpay; j p wd; mstE ehdrp

Md) hrd;

3) nehki w kwWk;vj phki w mwppFwp mstE ? kdrppi j t [

, i t vyyhtwppwFk; 45 epkpl ' fs; 1 kz p neuk;

Mfyhk/ , i t mi dj ; k;xnu epfHt;pyha nkwbfhssggLk/

j fty;?ufrpaj di k l?

, ej Muharrpay; c' fi s gwwpa j ftyfs; (bgah;

mi lahshfs; kUj ; t nrhj i d. kUj ; t tptu' fi s) btspapl

khl nl hk/ , ej gotj j py; i fbaGj ; nghLtj d; Kyk;

Muharrpahshfs; mtwJ FGtpdh; kwWk; bewpKi w FGtpdhfs;

c' fi s gwwpa j ftyfi s mwpe;J bfhssyhk; vdW xgg[y;

mspf;fpwRfs/ nkYk; , ej Mat [mwptpay; gj j phpfj ffs py;

btspapLk; bghGJ c' fs; FGei j apd; tptu' fi s btspggLj j n

khl nl hk/

Muharrirpary;g' F bgwhky;, Uj j y;c' fi s ghj pfFkh >

ePfs; c' fi s , ej Muharrirpary; clgLjj glhky;
, Uej hYk; kUj ;t rpfpri rapnyh Mathshpd; ey;Ywt tpyh
vt;tj ghj pggk;Vwgl hJ /

vbgghGJ MuharrirparypUe;J tPLgLtJ

, ej Muharrirpary;g' nfwgJ j' fSi l tPUggj j pd;
nghpy; j hd; , UffpwJ / nkYk; ePfs; vej neuKk; , ej
MuharrirparypUe;J k; tpyffp bfhssyhk/ Mdhy; tpyFtj wF Kd;
MuharrirpahsUFF mwptpggJ eyyJ /

Mathshpd; i fbahggk; g' nfwgth;i fbahggk;

ehs;

, lk;

, lJ i fnui f

	AGE	SEX	EDUCATION	OCCUPATION	MARITAL	PLACE	S#E#STA#TUS	SCHIZOPHRENIA_TYPE	DURATION_OF_ILLNESS	STAY_IN_HOSPITAL	NEOLOGISM	WORD_APPROXIMATION	CLANGING	POVERTY_OF_THOUGHT	POVERTY_OF_CONTENT	ILLOGICALITY	PRESSURE_OF_SPEECH	CIRCUMSTANTIALITY	TANGENTIALITY	DERAILMENT	INCOHERENT	LOSS_OF_GOAL	DISTRACTIBILITY	PERSEVERATION	SELF_REFERENCE	ECHOLALIA	BLOCKING	STILTED_SPEECH	GLOBAL_RATING	GLOBAL_RATINGS	POSITIVE_FTD_SCORE	NEGATIVE_FTD_SCORE	LOOSE_AS_SO_SCORE	POS_NEG_FTD	disorder_thought	disorder_language	disorder_communication
1.00	34.00	Male	Middle	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	18.00	14.00	0.00	14.00	14.00	0.00	0.00	18.00	
2.00	49.00	Male	UG	Clerical	Unmarried	Urban	Mid	Paranoid	Acute	--	0.00	0.00	1.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	20.00	14.00	0.00	16.00	14.00	0.00	2.00	18.00	
3.00	37.00	Male	Middle	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	3.00	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	14.00	8.00	6.00	4.00	2.00	10.00	4.00	0.00	
4.00	30.00	Male	Middle	Unskilled	Married	Rural	Low	Paranoid	Acute	--	0.00	2.00	0.00	0.00	0.00	2.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	24.00	18.00	0.00	14.00	18.00	4.00	4.00	16.00
5.00	35.00	Male	Middle	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	18.00	12.00	4.00	12.00	8.00	0.00	0.00	18.00	
6.00	40.00	Male	Middle	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	1.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	1.00	0.00	3.00	19.00	8.00	4.00	8.00	4.00	0.00	2.00	17.00	
7.00	24.00	Male	Middle	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	12.00	6.00	6.00	6.00	0.00	6.00	6.00	0.00	
8.00	32.00	Male	Primary	Unskilled	Married	Urban	Low	Paranoid	Acute	--	1.00	0.00	1.00	0.00	2.00	0.00	3.00	0.00	3.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	26.00	16.00	4.00	18.00	12.00	0.00	4.00	22.00	
9.00	40.00	Male	Middle	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	3.00	0.00	3.00	0.00	0.00	3.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	3.00	21.00	12.00	6.00	12.00	6.00	0.00	0.00	21.00	
10.00	24.00	Male	High	Semiskilled	Unmarried	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	2.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	13.00	10.00	0.00	6.00	10.00	4.00	0.00	9.00	
11.00	43.00	Female	High	Semiskilled	Married	Urban	Mid	Paranoid	Acute	--	1.00	0.00	0.00	0.00	0.00	2.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	21.00	16.00	0.00	12.00	16.00	4.00	2.00	15.00	
12.00	40.00	Male	Primary	Unskilled	Married	Urban	Low	Non Paranoid	Acute	--	1.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	14.00	8.00	4.00	4.00	4.00	8.00	6.00	0.00	
13.00	40.00	Male	Primary	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	14.00	12.00	0.00	12.00	12.00	0.00	0.00	14.00	
14.00	35.00	Male	UG	Skilled	Married	Urban	Mid	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	18.00	16.00	0.00	16.00	16.00	0.00	4.00	14.00	
15.00	36.00	Male	High	Semiskilled	Married	Urban	Mid	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	12.00	8.00	0.00	4.00	8.00	4.00	0.00	8.00	
16.00	26.00	Male	Middle	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	1.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	4.00	21.00	12.00	4.00	12.00	8.00	0.00	8.00	13.00	
17.00	24.00	Male	Middle	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	10.00	4.00	6.00	4.00	-2.00	6.00	4.00	0.00	
18.00	45.00	Male	High	Skilled	Unmarried	Urban	Mid	Paranoid	Acute	--	0.00	0.00	0.00	0.00	3.00	0.00	3.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	18.00	10.00	6.00	10.00	4.00	0.00	0.00	18.00	
19.00	35.00	Male	Primary	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	19.00	14.00	0.00	14.00	14.00	0.00	0.00	19.00	
20.00	20.00	Male	High	Unskilled	Unmarried	Urban	Mid	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	12.00	8.00	4.00	8.00	4.00	0.00	0.00	12.00	
21.00	24.00	Female	UG	Skilled	Unmarried	Urban	Mid	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	12.00	12.00	0.00	8.00	12.00	4.00	4.00	4.00	
22.00	26.00	Female	High	Semiskilled	Unmarried	Urban	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	8.00	0.00	8.00	0.00	-8.00	8.00	0.00	0.00	
23.00	24.00	Female	UG	Skilled	Unmarried	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	8.00	0.00	8.00	0.00	-8.00	8.00	0.00	0.00	
24.00	45.00	Female	Primary	Unskilled	Married	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	4.00	4.00	0.00	4.00	4.00	0.00	0.00	4.00	
25.00	35.00	Female	High	Semiskilled	Married	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	4.00	4.00	0.00	4.00	4.00	0.00	0.00	4.00	
26.00	45.00	Female	Primary	Unskilled	Married	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	12.00	6.00	6.00	6.00	0.00	6.00	6.00	0.00	
27.00	45.00	Female	Primary	Unskilled	Married	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	4.00	4.00	0.00	4.00	4.00	0.00	0.00	4.00	
28.00	45.00	Female	Primary	Unskilled	Unmarried	Rural	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	3.00	0.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	3.00	20.00	12.00	6.00	12.00	6.00	0.00	0.00	20.00	
29.00	25.00	Female	UG	Semiskilled	Unmarried	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	6.00	6.00	0.00	6.00	6.00	0.00	0.00	6.00	
30.00	22.00	Female	UG	Semiskilled	Unmarried	Urban	Low	Paranoid	Acute	--	0.00	0.00	0.00	0.00	0.00	2.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	10.00	10.00	0.00	6.00	10.00	4.00	0.00	6.00	
31.00	37.00	Female	UG	Skilled	Unmarried	Urban	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	20.00	16.00	4.00	16.00	12.00	0.00	6.00	14.00	
32.00	38.00	Male	High	Semiskilled	Unmarried	Urban	Low	Non Paranoid	Acute	--	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	16.00	10.00	6.00	10.00	4.00	0.00	0.00	16.00	
33.00	50.00	Female	High	Semiskilled	Unmarried	Urban	Low	Paranoid	Chronic	####	3.00	0.00	0.00	0.00	3.00	0.00	3.00	3.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	4.00	30.00	12.00	6.00	12.00	6.00	0.00	6.00	24.00	
34.00	45.00	Female	Primary	Unskilled	Unmarried	Rural	Low	Non Paranoid	Chronic	####	0.00	0.00	0.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	3.00	21.00	12.00	6.00	12.00	6.00	0.00	0.00	21.00	
35.00	43.00	Female	Primary	Unskilled	Married	Rural	Low	Non Paranoid	Chronic	####	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	12.00	8.00	4.00	8.00	4.00	4.00	4.00	4.00	
36.00	45.00	Female	Primary	Unskilled	Unmarried	Rural	Low	Non Paranoid	Chronic	7.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	14.00	8.00	6.00	8.00	2.00	0.00	4.00	10.00	
37.00	50.00	Female	Primary	Unskilled	Married	Rural	Low	Non Paranoid	Chronic	8.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	21.00	12.00	6.00	12.00	6.00	0.00	6.00	15.00	
38.00	46.00	Female	High	Semiskilled	Married	Rural	Low	Non Paranoid	Chronic	6.00																											

